Renovations to the Wake Forest Police Dept. Main Station

225 South Taylor Street, Wake Forest, NC 27587

Bidding & Permit Drawings

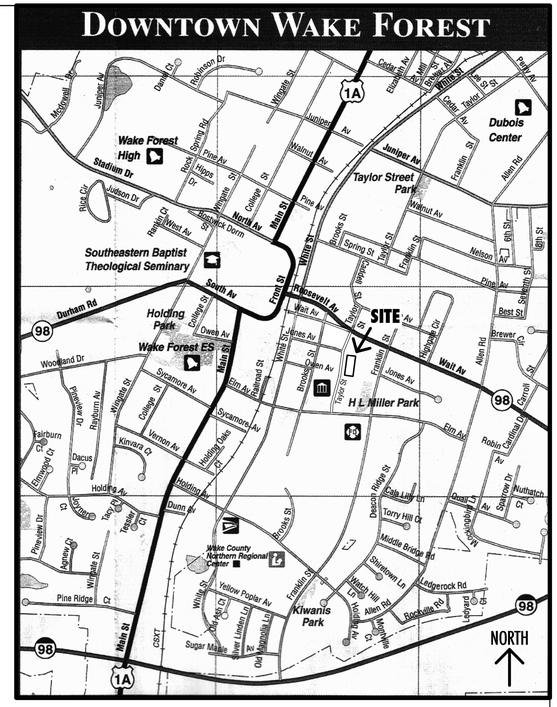
Owner: The Town of Wake Forest

301 South Brooks Street
Wake Forest, NC 27587

Owner's Representative:
Mickey Rochelle
Facilities Manager, Administration Department
919 - 435 - 9455
mrochelle@wakeforestnc.gov

Architect:
Hale Architecture, PC
P. O. Box 1437
Wake Forest, NC 27587
919 - 554 - 4000
halearch1@nc.rr.com

PME Engineer:
Kilian Engineering
115 Young Street, P. O. Box 3301
Henderson, NC 27614
252 - 438 - 8778
jvincik@kilianengineering.com



LOCATION MAP NO SCALE

INDEX TO DRAWINGS

APPROVALS

HALE ARCHITECTURE
MERGING THE ART OF DESIGN WITH THE SCIENCE OF BUILDING
P. O. Box 1437, Wake Forest, NC 27588
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HALE ARCHITECTURE, PC REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 51270 NORTH CAROLINA WAKE FOREST, NC

DAVID MATTHEW HALE REGISTERED ARCHITECT 4289 7/2/2012 NORTH CAROLINA WAKE FOREST, NC

PROJECT:
Renovations to the Wake Forest Police Station
225 South Taylor Street
Wake Forest, NC 27587

☐ DRAFT - Not For Construction
☑ FINAL - For Construction Use

DRAWN BY: DMH
CHECKED BY: DMH

ISSUE DATE:
July 2, 2012

REVISIONS:

SHEET TITLE:
Location Map & Index to Drawings

DRAWING SCALE:
full size

SHEET NUMBER:
Cover

2012 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: **Renovations to Wake Forest Police Station**
Address: **225 South Taylor Street, Wake Forest, NC** Zip Code **27587**
Proposed Use: **Office (Police Station)**
Owner/Authorized Agent: **Mickey Rochelle** Phone # **(919)435-9455** E-Mail **mrochelle@wakeforestnc.gov**
Owned By: ☒ City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: ☒ City **Wake Forest** ☐ County_____ ☐ State

LEAD DESIGN PROFESSIONAL: Matthew Hale / Hale Architecture, PC / Wake Forest, NC

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	Hale Architecture, PC	Matthew Hale	4289	(919)554-4000	halearch1@nc.rr.com
Civil	N / A			( )	
Electrical	Kilian Engineering	Michael Kilian	17304	(252)438-8778	mkilian@kilianengineering.com
Fire Alarm	N / A			( )	
Plumbing	Kilian Engineering	Michael Kilian	17304	(252)438-8778	mkilian@kilianengineering.com
Mechanical	Kilian Engineering	Michael Kilian	17304	(252)438-8778	mkilian@kilianengineering.com
Sprinkler-Standpipe	N / A			( )	
Structural	N / A			( )	
Retaining Walls >5' High	N / A			( )	
Other				( )	

2012 EDITION OF NC CODE FOR: ☐ New Construction ☐ Addition ☐ Upfit
EXISTING: ☒ Reconstruction ☐ Alteration ☐ Repair ☐ Renovation
CONSTRUCTED: (date) **1991** **ORIGINAL USE(S)** (Ch. 3)**: A-3 Assembly (COURTROOM) Business (POLICE STATION)**
RENOVATED: (date) **N / A** **CURRENT USE(S)** (Ch. 3)**: Business (POLICE STATION)**
PROPOSED USE(S) (Ch. 3)**: Business (POLICE STATION)**

BASIC BUILDING DATA
Construction Type: (check all that apply) ☐ I-A ☐ I-B ☐ II-A ☒ II-B ☐ III-A ☐ III-B ☐ IV ☐ V-A ☐ V-B
Sprinklers: ☒ No ☐ Partial ☐ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: ☒ No ☐ Yes (Primary) **Flood Hazard Area:** ☒ No ☐ Yes
Building Height: (feet) **20'**
Gross Building Area:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL (SQ FT)
6th Floor			
5th Floor			
4th Floor			
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor	7,014	155 (Enclose Entry)	7,169
Basement			
TOTAL	7,014		7,169

Mixed Occupancy: ☒ No ☐ Yes Separation: ____ Hr. Exception: _____
☐ Incidental Use Separation (508.2.5)
This separation is not exempt as a Non-Separated Use (see exceptions).
☐ Non-Separated Use (508.3)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
☐ Separated Use (508.4) - See below for area calculations
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

_____ + _____ + ... = _____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503[3] AREA	(C) AREA FOR FRONTAGE INCREASE[1]	(D) AREA FOR SPRINKLER INCREASE[2]	(E) ALLOWABLE AREA OR UNLIMITED[3]	(F) MAXIMUM BUILDING AREA[4]
1st Floor	**Police Station**	**7,169 SF**	**23,000 SF**	**N/A**	**N/A**	**23,000 SF**	**23,000 SF**

NOTES:
[1] Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase $I_f = 100 [F/P - 0.25] \times W/30$ = _____ (%)
[2] The sprinkler increase per Section 506.3 is as follows:
a. Multi-story building $I_s = 200$ percent
b. Single story building $I_s = 300$ percent
[3] Unlimited area applicable under conditions of Section 507.
[4] Maximum Building Area = total number of stories in the building x E (506.4).
[5] The maximum area of open parking garages must comply with Table 406.3.5. The maximum area of air traffic control towers must comply with Table 412.1.2.

ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS	SHOWN ON PLANS	CODE REFERENCE
Type of Construction	Type **II-B**		Type **II-B**	
Building Height in Feet	**55**	Feet = H + 20' = **N/A**	**20**	
Building Height in Stories	**3**	Stories + 1 = **N/A**	**1**	

☐ Exterior wall opening area with respect to distance to assumed property lines (705.8) **N/A**
☐ Existing structures within 30' of the proposed building **N/A** (EXCEPT PRECAST UTILITY SHEDS IN REAR)
☒ Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
☒ Occupant loads for each area **ONE FIRE AREA**
☒ Exit access travel distances (1016) **200 FEET**
☒ Common path of travel distances (1014.3 & 1028.8) **75 FEET**
☒ Dead end lengths (1018.4) **20 FEET**
☒ Clear exit widths for each exit door
☒ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
☒ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation **N/A (ONE STORY BUILDING)**
☒ Location of doors with panic hardware (1008.1.10) **FIRE EXIT HARDWARE**
☐ Location of doors with delayed egress locks and the amount of delay (1008.1.9.7) **N/A**
☒ Location of doors with electromagnetic egress locks (1008.1.9.8)
☐ Location of doors equipped with hold-open devices **N/A**
☐ Location of emergency escape windows (1029) **N/A**
☐ The square footage of each fire area (902) **N/A** (ONE FIRE AREA)
☐ The square footage of each smoke compartment (407.4) **N/A**
☒ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED
N/A							

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED				TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE		
EXISTING LOT							
TOTAL							

STRUCTURAL DESIGN

DESIGN LOADS:
Importance Factors: Wind (I_W) _____ Snow (I_S) _____ Seismic (I_E) _____
Live Loads: Roof _____ psf Mezzanine _____ psf Floor _____ psf
Ground Snow Load: _____ psf
Wind Load: Basic Wind Speed _____ mph (ASCE-7) Exposure Category _____ Wind Base Shears (for MWFRS) Vx = _____ Vy = _____

NOTE:
EXISTING BUILDING - NO NEW STRUCTURAL WORK IS PROPOSED

ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Climate Zone: ☐ 3 ☒ 4 ☐ 5

Method of Compliance:
☐ Prescriptive (Energy Code)
☐ Performance (Energy Code)
☐ Prescriptive (ASHRAE 90.1)
☐ Performance (ASHRAE 90.1)

NOTE:
EXISTING BUILDING ENVELOPE . INTERIOR RENOVATIONS ONLY.

THERMAL ENVELOPE

Roof/ceiling Assembly (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Skylights in each assembly: _____
U-Value of skylight: _____
total square footage of skylights in each assembly: _____

Exterior Walls (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
Openings (windows or doors with glazing)
U-Value of assembly: _____
Solar heat gain coefficient: _____
projection factor: _____
Door R-Values: _____

Walls below grade (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:

Floors over unconditioned space (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors slab on grade
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Horizontal/vertical required: _____
Slab heated: **No**

ALLOWABLE AREA

Occupancy:
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☒
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled ☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Accessory Occupancies: NONE
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☐
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled ☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Incidental Uses (Table 508.2.5)**:**
☐ Furnace room where any piece of equipment is over 400,000 Btu per hour input
☐ Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
☐ Refrigerant machine room
☐ Hydrogen cutoff rooms, not classified as Group H
☐ Incinerator rooms
☐ Paint shops, not classified as Group H, located in occupancies other than Group F
☐ Laboratories and vocational shops, not classified as Group H. located in a Group E or I-2 occupancy
☐ Laundry rooms over 100 square feet
☐ Group I-3 cells equipped with padded surfaces
☐ Group I-2 waste and linen collection rooms
☐ Waste and linen collection rooms over 100 square feet
☐ Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
☐ Rooms containing fire pumps
☐ Group I-2 storage rooms over 100 square feet
☐ Group I-2 commercial kitchens
☐ Group I-2 laundries equal to or less than 100 square feet
☐ Group I-2 rooms or spaces that contain fuel-fired heating equipment

Special Uses: ☐ 402 ☐ 403 ☐ 404 ☐ 405 ☐ 406 ☐ 407 ☐ 408 ☐ 409 ☐ 410 ☐ 411 ☐ 412 ☐ 413 ☐ 414 ☐ 415 ☐ 416 ☐ 417 ☐ 418 ☐ 419 ☐ 420 ☐ 421 ☐ 422 ☐ 423 ☐ 424 ☐ 425 ☐ 426 ☐ 427

Special Provisions: ☐ 509.2 ☐ 509.3 ☐ 509.4 ☐ 509.5 ☐ 509.6 ☐ 509.7 ☐ 509.8 ☐ 509.9

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/_____ * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Exterior							
North	30	0	0	N/A	N/A	N/A	N/A
East	30	0	0	N/A	N/A	N/A	N/A
West	30	0	0	N/A	N/A	N/A	N/A
South	30	0	0	N/A	N/A	N/A	N/A
Interior	- - -	0	0	N/A	N/A	N/A	N/A
Nonbearing Walls and Partitions							
Exterior walls							
North	30	0	0	N/A	N/A	N/A	N/A
East	30	0	0	N/A	N/A	N/A	N/A
West	30	0	0	N/A	N/A	N/A	N/A
South	30	0	0	N/A	N/A	N/A	N/A
Interior walls and partitions	- - -	0	0	N/A	N/A	N/A	N/A
Floor Construction Including supporting beams and joists	- - -	0 (slab)	0	N/A	N/A	N/A	N/A
Roof Construction Including supporting beams and joists	- - -	0	0	N/A	N/A	N/A	N/A
Shaft Enclosures - Exit	- - -	N/A	N/A	N/A	N/A	N/A	N/A
Shaft Enclosures - Other	- - -	N/A	N/A	N/A	N/A	N/A	N/A
Corridor Separation	- - -	1	1	E-1 P-1	U-432	W-L-1088 W-L-2059	- - -
Occupancy Separation	- - -	N/A	N/A	N/A	N/A	N/A	N/A
Party/Fire Wall Separation	- - -	N/A	N/A	N/A	N/A	N/A	N/A
Smoke Barrier Separation	- - -	N/A	N/A	N/A	N/A	N/A	N/A
Tenant Separation	- - -	N/A	N/A	N/A	N/A	N/A	N/A
Incidental Use Separation	- - -	N/A	N/A	N/A	N/A	N/A	N/A

* Indicate section number permitting reduction

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ☒ Yes
Exit Signs: ☐ No ☒ Yes
Fire Alarm: ☒ No ☐ Yes
Smoke Detection Systems: ☒ No ☐ Yes ☐ Partial _____
Panic Hardware: ☐ No ☒ Yes **FIRE EXIT HARDWARE**

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: **A-0.1**
☒ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations **N/A**

SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration S_S _____ %g S_1 _____ %g
Site Classification (Table 1613.5.2) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data
Basic structural system (check one)
☐ Bearing Wall ☐ Dual w/Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Seismic base shear: V_X = V_Y =
Analysis Procedure: ☐ Simplified ☐ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored? ☐ Yes ☐ No

LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☐

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) _____ psf
Presumptive Bearing capacity _____ psf
Pile size, type, and capacity _____

SPECIAL INSPECTIONS REQUIRED: ☐ Yes ☒ No

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATERCLOSETS		URINALS	LAVATORIES		SHOWERS/ TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE		MALE	FEMALE		REGULAR	ACCESSIBLE
BUSINESS (72) = 36 MALE + 36 FEMALE	EXISTING	**2 ***	**2 ***	**0**	**2 ***	**2 ***	**2 ***	**0**	**1 ***
	NEW	**1**	**1**	**0**	**1**	**1**	**0**	**1 ***	**0**
	REQUIRED	**2**	**2**	**0**	**1**	**1**	**0**	**1**	**1**

* Fixtures remaining after demolition

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, ICC, etc., describe below)

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb: _____

NOTE:
SEE SHEET M-1

Interior design conditions
winter dry bulb: _____
summer dry bulb: _____
relative humidity: _____

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler
Size category. If oversized, state reason.: _____
Chiller
Size category. If oversized, state reason.: _____

List equipment efficiencies: _____

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance:
Energy Code: ☐ Prescriptive ☐ Performance
ASHRAE 90.1: ☐ Prescriptive ☐ Performance

NOTE:
SEE SHEET E-1

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Prescriptive Compliance
☐ 506.2.1 More Efficient Mechanical Equipment
☐ 506.2.2 Reduced Lighting Power Density
☐ 506.2.3 Energy Recovery Ventilation Systems
☐ 506.2.4 Higher Efficiency Service Water Heating
☐ 506.2.5 On-Site Supply of Renewable Energy
☐ 506.2.6 Automatic Daylighting Control Systems

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DAVID MATTHEW HALE 4289 REGISTERED ARCHITECT 7/2/2012 NORTH CAROLINA WAKE FOREST, NC

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Design Study for Renovations to the Wake Forest Police Station
225 South Taylor Street
Wake Forest, NC 27587

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☑ FINAL - For Construction Use

DRAWN BY: DMH
CHECKED BY: DMH

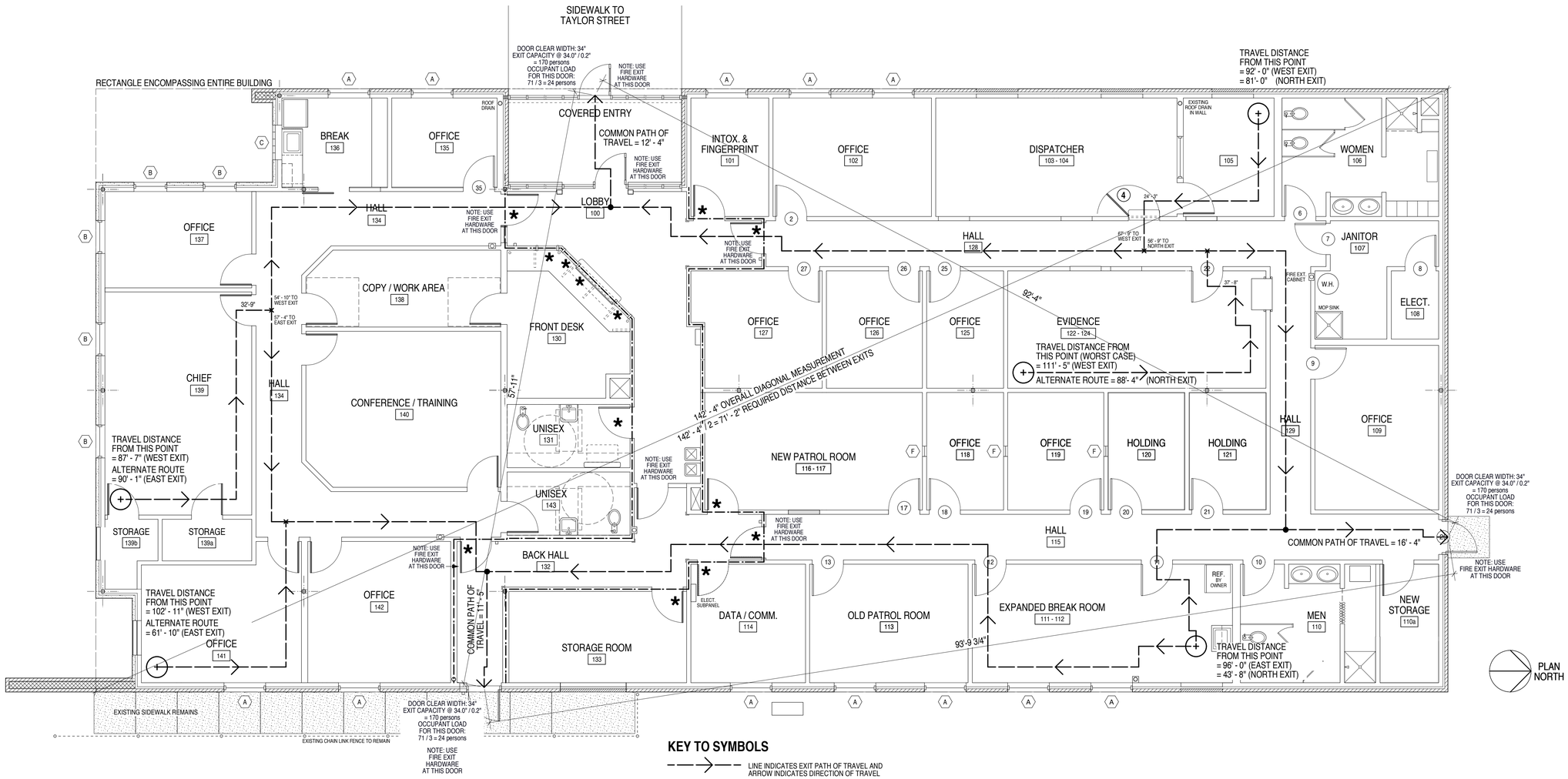
ISSUE DATE: *July 2, 2012*

REVISIONS:

SHEET TITLE:
Appendix B: Building Code Summary

DRAWING SCALE: *full size*

SHEET NUMBER:
A-0.0



KEY TO SYMBOLS

- LINE INDICATES EXIT PATH OF TRAVEL AND ARROW INDICATES DIRECTION OF TRAVEL
- INDICATES FIRE-RATED PARTITION
- * INDICATES 20 MINUTE FIRE-RATED OPENING

LIFE SAFETY PLAN NOTES

1. BUILDING IS ONE FIRE AREA OF 7,014 GSF.
2. OCCUPANCY TYPE OF FIRE AREA IS "B" (BUSINESS).
3. OCCUPANT LOAD OF FIRE AREA IS 7,014 GSF / 100 GSF PER PERSON = 72 PERSONS.
4. DISTANCE TO PROPERTY LINES EXCEEDS 30 FEET IN ALL DIRECTIONS.

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SHEET TITLE:

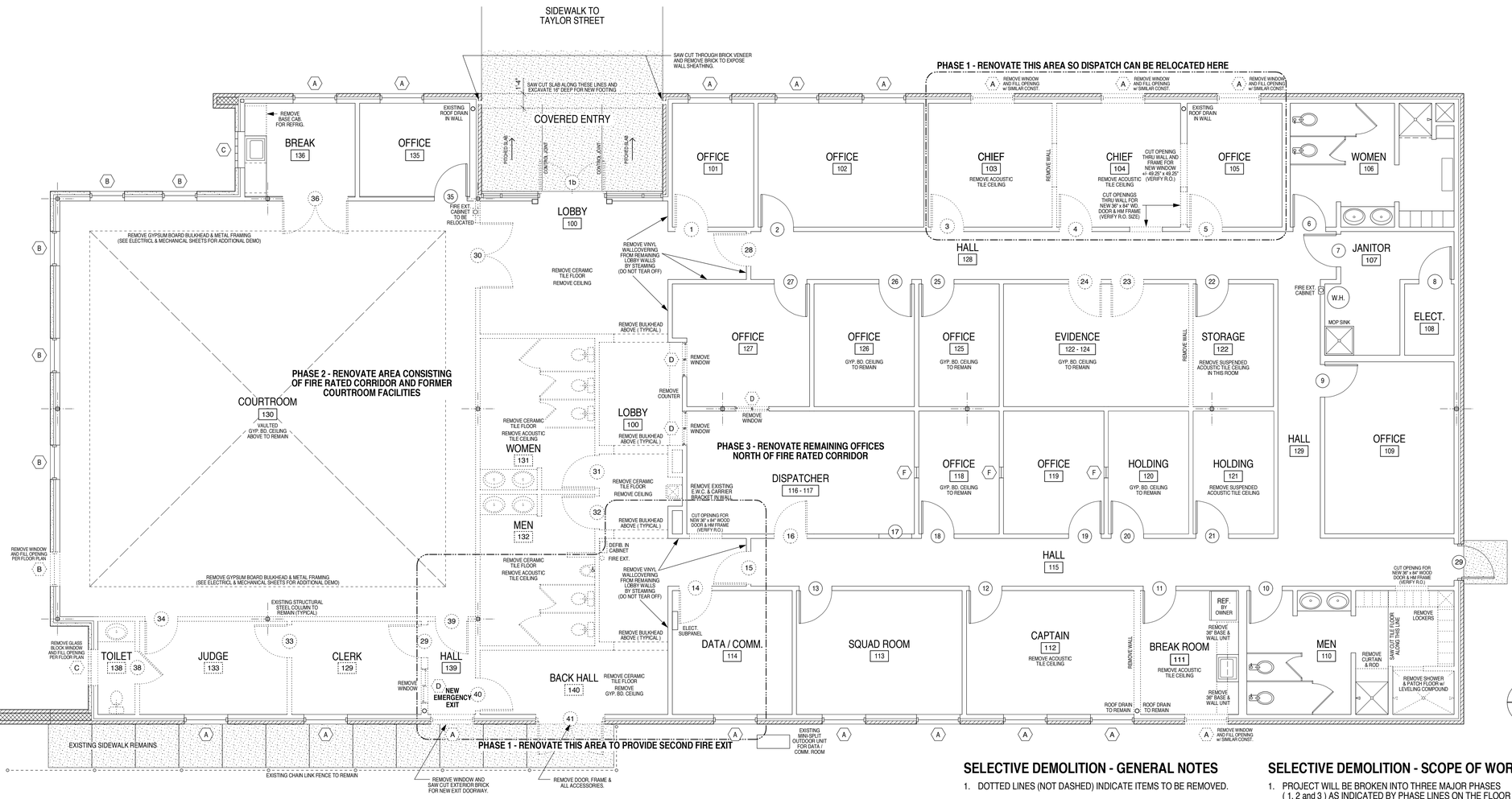
Life Safety Plan & UL Designs

7,014 GSF

DRAWING SCALE: *3/16" = 1'-0"*

SHEET NUMBER:

A-0.1



SELECTIVE DEMOLITION - GENERAL NOTES

1. DOTTED LINES (NOT DASHED) INDICATE ITEMS TO BE REMOVED.

   IN GENERAL, ALL WORK THAT IS ASSOCIATED WITH THE ITEM INDICATED SHOULD ALSO BE REMOVED, IF IT CAN BE REASONABLY INFERRED (FOR EXAMPLE, DOOR REMOVAL WOULD INCLUDE FRAMES, THRESHOLD AND HARDWARE).

2. PROTECT ALL ITEMS & EXISTING WORK INDICATED TO REMAIN.

3. BUILDING WILL BE IN USE DURING DEMOLITION ACTIVITY. THEREFORE CONTRACTOR SHALL:

   a. PROTECT BUILDING STAFF & VISITORS BY USE OF WARNING SIGNS, BARRICADES, DRAPES, ETC.
   b. COORDINATE WORK SCHEDULE & WORK AREAS WITH BUILDING STAFF, IN ORDER TO MINIMIZE DISRUPTION.
   c. COORDINATE UTILITY INTERRUPTIONS & OUTAGES. PROVIDE ADVANCE NOTICE @ 24 HOURS AND @ 1 HOUR.

4. LIMIT IMPACT OF DUST & DEBRIS BY DAILY CLEANING.

5. PROVIDE TEMPORARY WEATHER & SECURITY BARRIERS WHERE WINDOWS & DOORS ARE REMOVED AND WILL BE LEFT OVERNIGHT OR ANY LONGER DURATION.

6. PROVIDE TEMPORARY SHORING & BRACING AS NECESSARY TO PROTECT EXISTING WORK & BUILDING OCCUPANTS.

7. ITEMS INDICATED TO BE REMOVED & REUSED SHALL BE SALVAGED, STORED & PROTECTED FROM DAMAGE.

8. ITEMS INDICATED TO BE REMOVED BUT NOT REUSED IN THE WORK SHALL BE SEPARATED INTO LOTS AS FOLLOWS:

   a. RECYCLABLE SALVAGE MATERIALS, FOR EXAMPLE:
      ALL SCRAP METALS;
      CONCRETE, TILE & BRICK;
      GYPSUM BOARD;
      ACOUSTICAL CEILING TILE.
      THESE ITEMS SHALL BE TRANSPORTED TO THE APPROPRIATE COLLECTION / PROCESSING STATIONS.

   b. NON-RECYCLABLE MATERIALS and/or TRASH SHALL BE REMOVED FROM THE PREMISES AND DISPOSED IN LEGAL LANDFILLS.

9. CONTRACTOR OR SUBCONTRACTORS SHALL RETAIN ALL PROCEEDS FROM SALE OF RECYCLED MATERIALS.

SELECTIVE DEMOLITION - SCOPE OF WORK

1. PROJECT WILL BE BROKEN INTO THREE MAJOR PHASES (1, 2 and 3) AS INDICATED BY PHASE LINES ON THE FLOOR PLAN DRAWING. PHASE 1 DEMOLITION SHALL OCCUR FIRST, FOLLOWED BY PHASE 1 NEW CONSTRUCTION .

2. ALL FINISH FLOORING SHALL BE REMOVED & REPLACED, WITH THE EXCEPTION OF: ROOMS #106 (WOMEN), #107 (JANITOR), #108 (ELECTRICAL), #110 (MEN), and #114 (DATA / COMM).

   FLOORING REMOVAL / REPLACEMENT WORK WILL PROCEED INTER-MITTENTLY, AS ROOMS BECOME AVAILABLE DURING VARIOUS PHASES.

3. REMOVE SUSPENDED ACOUSTICAL CEILING SYSTEMS & DRYWALL CEILINGS IN AREAS TO BE RENOVATED (EXCEPT CATHEDRAL CEILING ABOVE COURTROOM), BECAUSE THE CEILING LAYOUT IN THOSE AREAS WILL BE CHANGED AS PART OF NEW WORK.

4. REMOVE PLUMBING FIXTURES WHERE INDICATED ON **SHEET P-2.**

   WHERE SUPPLY & WASTE LINES WILL NO LONGER BE USED, REMOVE PIPING TO BELOW SLAB OR ABOVE CEILING. INSTALL PERMANENT CAPS / PLUGS.

   WHERE SUPPLY & WASTE LINES WILL BE RE-USED, STUB PIPING TO A LOGICAL TERMINATION POINT TO COORDINATE WITH THE NEW PLAN AND PROVIDE TEMPORARY CAPS / PLUGS.

5. REMOVE ELECTRICAL DEVICES & FIXTURES WHERE WALLS, ENTIRE ROOMS OR CEILINGS ARE INDICATED TO BE REMOVED. **SEE ELECTRICAL DEMOLITION PLAN, SHEET E-2.** CAP LOOSE ELECTRICAL WIRES. LABEL CIRCUIT, COIL WIRE, AND TIE UP ABOVE CEILING LINE FOR FUTURE USE.

6. REMOVE HVAC REGISTERS / GRILLES, EXHAUST FANS, AND DUCTWORK WHERE ENTIRE ROOMS OR CEILINGS ARE INDICATED TO BE REMOVED. **SEE MECHANICAL SHEET M-2.**

   STUB SUPPLY / RETURN DUCTS TO A LOGICAL TERMINATION POINTS ABOVE CEILING LINE TO COORDINATE WITH THE NEW PLAN AND PROVIDE TEMPORARY CAP / PLUG FOR EASY FUTURE RE-USE.

7. REMOVE ALL OTHER MISCELLANEOUS ITEMS INDICATED AND / OR, WHICH CAN REASONABLY BE INFERRED FROM THE DEMOLITION PLAN AND AS PREPARATION FOR THE PROPOSED NEW WORK.

8. WHERE ITEMS ARE REMOVED, RESTORE REMAINING WORK TO MATCH ORIGINAL CONDITION. REPLACE / REPAIR / PATCH VOIDS OR OPENINGS IN FINISH SURFACES AND SUPPORTING WORK (FRAMING, SLABS, ETC.) AS NECESSARY.

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HALE ARCHITECTURE, PC REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 51270 NORTH CAROLINA WAKE FOREST, NC

DAVID MATTHEW HALE REGISTERED ARCHITECT 7289 7/2/2012 NORTH CAROLINA WAKE FOREST, NC

PROJECT:

Renovations to the Wake Forest Police Station

225 South Taylor Street
Wake Forest, NC 27587

☐ DRAFT - Not For Construction
☑ FINAL - For Construction Use

DRAWN BY: DMH
CHECKED BY: DMH

ISSUE DATE:
July 2, 2012

REVISIONS:

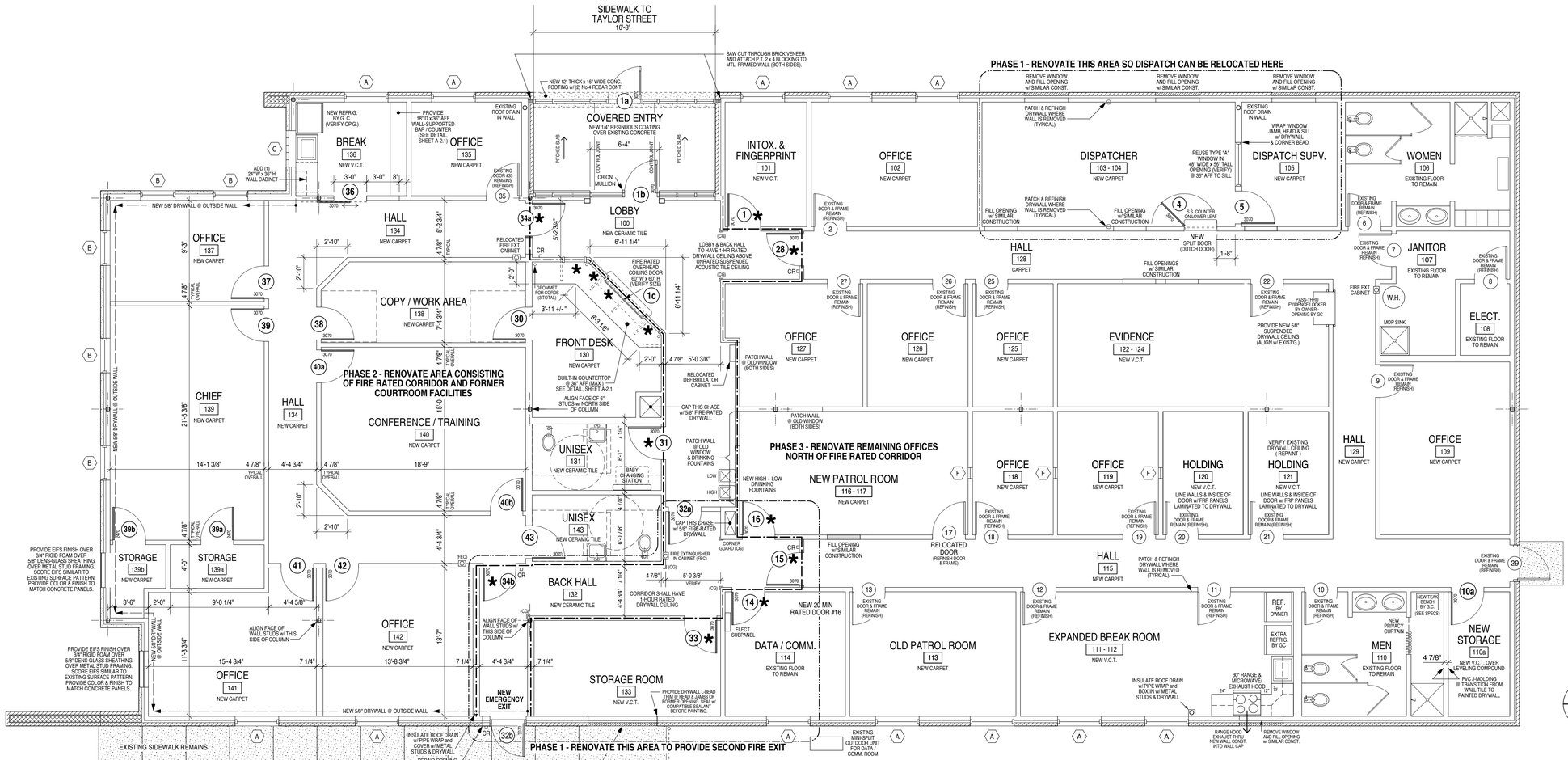
SHEET TITLE:

Existing Conditions and Demolition

DRAWING SCALE:
3/16" = 1'-0"

SHEET NUMBER:

A-1.0



KEY TO SYMBOLS

- EXISTING WALLS TO REMAIN IN PLACE (TOUCH UP, REPAIR & REPAINT ALL SURFACES)
- EXISTING EXTERIOR PRECAST CONCRETE PANELS
- EXISTING EXTERIOR BRICK VENEER
- NEW 3 5/8" METAL STUD & DRYWALL PARTITION (FINISHED WALL THICKNESS 4 7/8")
- NEW 6" METAL STUD & DRYWALL PARTITION (FINISHED WALL THICKNESS 7 1/4")
- INDICATES DIVIDING LINE BETWEEN PHASES 1 & 2
- INDICATES FIRE-RATED PARTITION
- INDICATES A DOOR w/ ELECTRIC STRIKE & CARD READER
- SHADING INDICATES A NEW DOOR, HOLLOW METAL FRAME & HARDWARE SET
- NUMBER INDICATES DOOR SIZE IN FEET & INCHES (ALL NEW DOOR HEIGHTS ARE 7'-0")
- SYMBOL INDICATES A 20 MINUTE FIRE-RATED DOOR WITH CLOSER AND LATCH
- 48" HIGH NYLON CORNER GUARD

GENERAL REQUIREMENTS

SEE PROJECT MANUAL FOR EXPANDED / DETAILED INFORMATION.

1. COST OF PERMITS SHALL BE PAID BY OWNER (TOWN OF WF).
2. GENERAL CONTRACTOR SHALL PROVIDE WORKER'S COMPENSATION AND BUSINESS GENERAL LIABILITY INSURANCE IN FORMS AND AMOUNTS ACCEPTABLE TO TOWN PURCHASING DEPARTMENT PER STANDARD "MEMORANDUM OF UNDERSTANDING" (COPY OF MEMORANDUM IS ATTACHED TO PROJECT MANUAL).
3. PROVIDE COMPLETE WORK & FIXTURES INDICATED ON DRAWINGS. PROVIDE ALL ITEMS THAT CAN BE REASONABLY INFERRED TO BE ASSOCIATED WITH THE WORK INDICATED. FOR EXAMPLE: A NEW DOOR WILL NECESSARILY INCLUDE FRAMES, THRESHOLD, HARDWARE & OTHER ACCESSORIES.
4. BUILDING WILL BE IN USE DURING CONSTRUCTION ACTIVITY. THEREFORE CONTRACTOR SHALL:
   a. PROTECT BUILDING STAFF & VISITORS BY USE OF WARNING SIGNS, BARRICADES, DUST CURTAINS, ETC.
   b. COORDINATE WORK SCHEDULE & WORK AREAS WITH FACILITY STAFF, IN ORDER TO MINIMIZE DISRUPTION.
   c. COORDINATE UTILITY INTERRUPTIONS & OUTAGES. PROVIDE ADVANCE NOTICE @ 24 HOURS AND @ 1 HOUR.
5. LIMIT IMPACT OF DUST & DEBRIS BY DAILY CLEANING. SCOPE OF WORK SHALL ALSO INCLUDE A FINAL DEEP CLEANING PRIOR TO OWNER'S OCCUPANCY.
6. TEMPORARY POWER PANEL FOR CONSTRUCTION MAY BE ENERGIZED FROM EXISTING BUILDING CIRCUITS.
7. PROVIDE TEMPORARY SANITARY FACILITIES (PORTABLE TOILETS) FOR CONSTRUCTION PERSONNEL. DO NOT USE EXISTING FACILITY TOILETS.

CONTRACT ALLOWANCES

SEE PROJECT MANUAL FOR EXPANDED / DETAILED INFORMATION.

1. SCHEDULE OF ALLOWANCES:

EXISTING CEILING GRID REPAIR & REPLACEMENT	$ 1,500.00
CONTRACTOR'S ALLOWANCE FOR CARPET:	$ 32.00 / YARD.
CONTRACTOR'S ALLOWANCE FOR CERAMIC FLOOR TILE:	$ 7.00 / SF.
CONTRACTOR'S ALLOWANCE FOR APPLIANCES: (Include all necessary cords & icemaker water supply hose)	$ 4,500.00.

SUBMITTALS

SEE PROJECT MANUAL FOR EXPANDED / DETAILED INFORMATION.

1. SUBMIT PRODUCT DATA & SAMPLES FOR ARCHITECT'S REVIEW & SELECTION AND OWNER'S CONFIRMATION.
2. ALLOW SUFFICIENT ADVANCE TIME FOR SUBMITTAL REVIEW & POSSIBLE RETURN FOR CORRECTION. ARCHITECT & OWNER SHALL NOT BE RESPONSIBLE FOR CONTRACT DELAYS CAUSED BY POORLY TIMED OR INCORRECT SUBMITTALS.

NEW CONSTRUCTION NOTES

SEE PROJECT MANUAL FOR EXPANDED / DETAILED INFORMATION.

1. DIMENSIONS SHOWN ARE FINISH SURFACE TO FINISH SURFACE, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. INSTALL NEW WORK FLUSH / PLANE WITH EXISTING WORK FOR BEST POSSIBLE APPEARANCE.
3. CONSTRUCTION WASTE MANAGEMENT:
   a. SET ASIDE RECYLABLE MATERIALS, FOR EXAMPLE: SCRAP METAL OF ALL TYPES; CORRUGATED CONTAINERS; CONCRETE, TILE & BRICK; THESE ITEMS SHALL BE TRANSPORTED TO THE APPROPRIATE MATERIAL COLLECTION / PROCESSING STATIONS.
   b. NON-RECYCLABLE MATERIALS and/or TRASH SHALL BE REMOVED FROM THE PREMISES AND DISPOSED IN LEGAL LANDFILLS.
   c. CONTRACTOR RESPONSIBLE FOR WASTE MANAGEMENT SHALL RETAIN ALL PROCEEDS FROM SALE OF RECYCLED MATERIALS.
4. CONTRACTOR SHALL ACCOMMODATE INSTALLATION OF OWNER-PROVIDED ITEMS BY OTHER VENDORS, AND SHALL NOT BE HELD RESPONSIBLE FOR ANY SCHEDULE DELAYS CAUSED BY SAME.
5. FOR COMPLETE SCOPE OF WORK, SEE ALSO THE DEMOLITION PLAN, OTHER ARCHITECTURAL DRAWINGS, AND PLUMBING / MECHANICAL / ELECTRICAL DRAWINGS. AN APPEARANCE OF, OR REFERENCE TO, AN ITEM OF WORK ON ANY SHEET, REGARDLESS OF WHETHER IT OCCURS ON OTHER SHEETS, MEANS THE ITEM SHALL BE INCLUDED IN THE BASIC BID PRICE.

MATERIAL & PRODUCT NOTES

SEE PROJECT MANUAL FOR EXPANDED / DETAILED INFORMATION.

1. NEW DOORS SHALL MATCH EXISTING DOOR VENEER SPECIES & FINISH. EXISTING DOORS TO BE REFINISHED SHALL BE STRIPPED OR SANDED AND THEN VARNISHED.
2. NEW CEILING HEIGHTS SHALL BE +/- 10'-0" IN FORMER COURTROOM AREA. IN OTHER AREAS, MATCH EXISTING CEILING HEIGHTS UNLESS NOTED OTHERWISE.
3. WALLS SHALL EXTEND TO 6" MIN. ABOVE FINISH CEILING.
4. NEW METAL WALL STUDS SHALL BE MIN. 20 GAUGE. PROVIDE SLIDING CONNECTIONS AT OVERHEAD STRUCTURE TO MINIMIZE DRYWALL DAMAGE FROM DEFLECTION / UPLIFT.
5. WALL SURFACE MATERIAL SHALL BE 5/8" GYPSUM BOARD. PROVIDE 5/8" FIRE-RATED GYPSUM BOARD AT RATED WALLS.
6. PAINT ALL WALLS WITH 1 COAT OF PRIMER/SEALER PLUS 2 COATS OF 100% ACRYLIC LATEX PAINT (EGGSHELL FINISH), EXCEPT AT KITCHEN SPLASH & TOILET ROOMS USE LOW-GLOSS (or SEMI-GLOSS) ENAMEL FINISH.
7. NEW FACE BRICK SHALL BE SAME SIZE AS EXISTING FACE BRICK, IN A COMPLEMENTARY THROUGH-COLOR (USE A DARKER SHADE THAN EXISTING) SELECTED BY ARCHITECT.
8. NEW CARPETING SHALL BE DIRECT-GLUED, 3/8" PILE, LEVEL LOOP, ANTI-STATIC AND ANTI-MICROBIAL TREATED NYLON.
9. NEW VCT FLOOR SHALL BE ARMSTRONG, TARKETT OR EQUIVALENT IN STANDARD RANGE OF COLORS & PATTERNS. INSTALLATION SHALL INCLUDE ALL NECESSARY SLAB PREP. STRIP and POLISH NEW TILE w/ 1 COAT SEALER + 3 FINISH COATS.
10. NEW CASEWORK & COUNTERTOPS SHALL BE CUSTOM GRADE, PLASTIC LAMINATE COVERED, REVEAL OVERLAY, STYLE A (FRAMELESS). PROVIDE 0.12 - inch (3 mm) PVC EDGE BANDING.
    LAMINATE GRADE FOR EXPOSED SURFACES: HGS.
    LAMINATE GRADE FOR SEMI-EXPOSED SURFACES: VGS.
    DRAWER BOTTOMS, SIDES & BACKS: THERMOSET DECORATIVE SURFACE.
11. CORNER GUARDS SHALL BE EQUIVALENT TO "150BN BLUNOSE SURFACE MOUNT CORNER GUARD" BY INPRO CORP., IN STANDARD VINYL COLORS.
12. CABLING, JACKS AND OTHER "SOFT" INFRASTRUCTURE FOR DATA, VIDEO, SECURITY & ELECTRONIC ACCESS SYSTEMS SHALL BE BY OWNER. "HARD" INFRASTRUCTURE FOR THE ABOVE REFERENCED SYSTEMS (EMPTY CONDUIT & WALL BOXES) SHALL BE PROVIDED BY G. C. SEE ELECTRICAL DRAWINGS.
13. INSULATION: FOR SOUND ATTENUATION, PROVIDE UNFACED BATTS INSIDE ALL NEW STUD WALLS (BATT THICKNESS APPROPRIATE FOR STUD SIZE) AND PROVIDE 6" UN-FACED BATTS ABOVE LAY-IN CEILINGS AT ALL NEW ROOMS (EXCEPT FIRE-RATED CORRIDOR).
14. COORDINATE LOCK KEYING SYSTEM WITH EXISTING MASTER KEY SYSTEM.
15. PROVIDE COMMISSIONING (TESTING & BALANCING) OF ALL HVAC SYSTEMS, BOTH NEW AND REFURBISHED. CONDUCT ORIENTATION & TRAINING OF OWNER'S DESIGNATED PERSONNEL FOR MAINTENANCE & OPERATION. (SEE NOTES ON MECHANICAL SHEETS).

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DAVID MATTHEW HALE REGISTERED ARCHITECT 7289 7/2/2012 NORTH CAROLINA WAKE FOREST, NC

PROJECT:

Renovations to the Wake Forest Police Station

225 South Taylor Street
Wake Forest, NC 27587

☐ DRAFT - Not For Construction
☑ FINAL - For Construction Use

DRAWN BY: DMH
CHECKED BY: DMH

ISSUE DATE: *July 2, 2012*

REVISIONS:

SHEET TITLE:

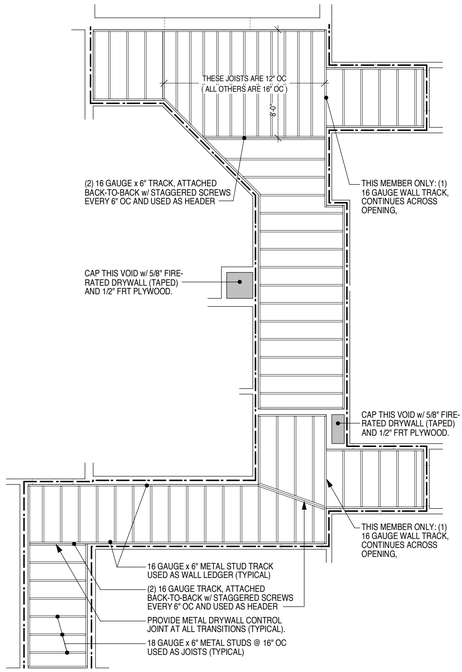
Floor Plan of Proposed Work

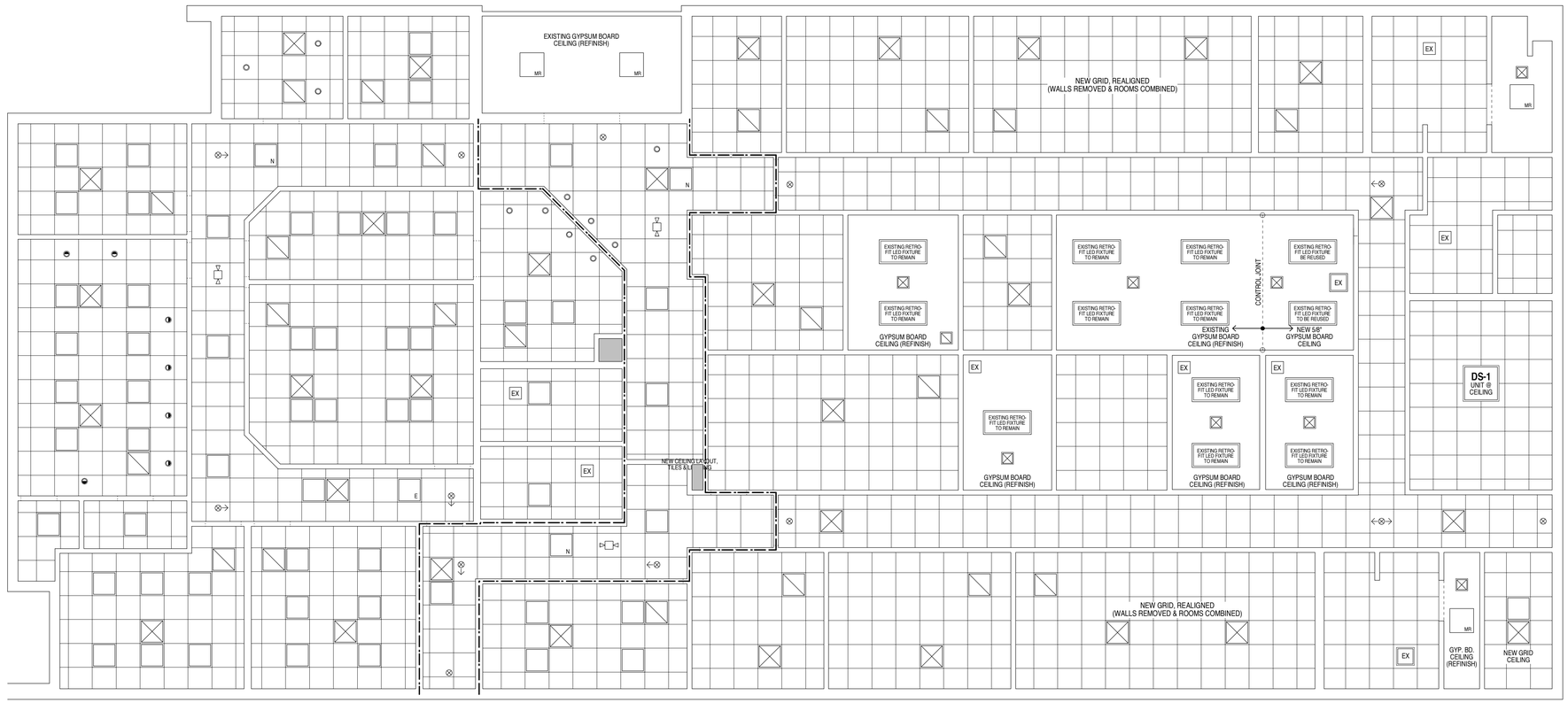
7,169 GSF

DRAWING SCALE: *3/16" = 1'-0"*

SHEET NUMBER:

A-1.1





1 HOUR RATED CEILING FRAMING PLAN

SEE CORRIDOR SECTION DRAWING FOR ADDITIONAL DETAIL.

PROVIDE (1) LAYER OF 5/8" DRYWALL (TAPED) ON BOTH TOP & BOTTOM SIDE OF CEILING FRAMING.

AFTER TAPING DRYWALL, FASTEN (1) LAYER OF 1/2" (NOMINAL) FIRE-RETARDANT TREATED PLYWOOD ON TOP AS A TRAFFIC LAYER.

FIRE SEAL ALL PIPE & CONDUIT PENETRATIONS.

PROVIDE FIRE DAMPERS AT DUCT PENETRATIONS.

CEILING SCOPE OF WORK

THE FOLLOWING DESCRIPTION IS PROVIDED AS A CONVENIENCE FOR CLARIFICATION TO THE BIDDER / CONTRACTOR. IT SHALL NOT BE UNDERSTOOD AS A LIMITATION OF THE SCOPE OF WORK TO THESE ITEMS ONLY.

1. ALL EXISTING LAY-IN ACOUSTIC TILES SHALL BE REMOVED AND STACKED N PALLETS FOR PICK-UP BY CEILING TILE VENDOR / MANUFACTURER TO BE RECYCLED.
2. FROM THE MAIN EXIT CORRIDOR SOUTH (INCLUDING THE MAIN EXIT CORRIDOR), PROVIDE ALL NEW CEILING GRID. SEE PROJECT MANUAL FOR PRODUCT SPECIFICATIONS.
3. FROM THE MAIN EXIT CORRIDOR NORTH, EXISTING GRID SYSTEM SHALL REMAIN IN PLACE. SEE PROJECT MANUAL FOR A **CONTRACTOR'S ALLOWANCE** FOR REPAIR & REPLACEMENT OF DAMAGED COMPONENTS.
4. THREE ROOMS IN THE NORTH END SHALL HAVE THE EXISTING CEILING GRID REWORKED: DISPATCH, STORAGE, AND BREAK ROOM. FOR CONTRACT PURPOSES, ASSUME THE ENTIRE GRID SYSTEM IN EACH OF THESE ROOMS SHALL BE REMOVED & REPLACED.
5. ALL SCRAP METAL FROM CEILING GRID REMOVAL WORK (GRID COMPONENTS AND HANGER WIRE) SHALL BE COLLECTED FOR DELIVERY TO SCRAP METAL SALVAGE YARD. DO NOT PUT SCRAP METAL IN WASTE CONTAINER / TRASH DUMPSTER.
6. PROVIDE NEW 24" x 24" x 5/8" COMMERCIAL GRADE ACOUSTIC TILES FOR ENTIRE BUILDING. **THERE ARE NO FIRE RATED ACOUSTIC CEILINGS**. SEE PROJECT MANUAL FOR SPECIFICATIONS.
7. PROVIDE A MAINTENANCE STOCK OF REPLACEMENT TILES IN ORIGINAL FACTORY PACKAGING, IN A QUANTITY EQUAL TO **5% OF THE TOTAL INSTALLATION**.
8. NEW 5/8" THICK GYPSUM BOARD CEILING AT EVIDENCE ROOM SHALL ALIGN WITH EXISTING CEILING. METAL CONTROL JOINT SHALL BE USED AT JUNCTION FOR A NEATER APPEARANCE.
9. REPAIR AND REFINISH OTHER EXISTING GYPSUM BOARD CEILINGS SCHEDULED TO REMAIN IN PLACE, INCLUDING THE EXTERIOR CEILING AT MAIN ENTRANCE.

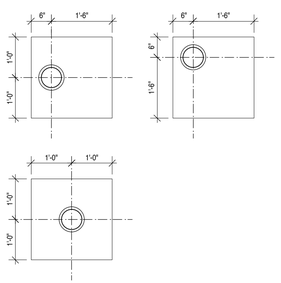
FIXTURE SYMBOLS

- MR / VR — LED SURFACE MOUNTED FIXTURES FOR GYPSUM BOARD CEILINGS; LETTERS INDICATE WHETHER FIXTURE IS RATED VANDAL RESISTANT (VR) OR MOISTURE RESISTANT (MR)
- EXISTING TROFFER FIXTURE TO REMAIN PREVIOUSLY RETROFIT w/ LED LAMPS & DRIVERS
- N / E — 2' x 2' LED TROFFER FIXTURE; LETTERS INDICATE WHETHER FIXTURE SERVES AS NIGHT LIGHT (N) OR EMERGENCY EXIT LIGHT (E)
- EMERGENCY EXIT LIGHTS (WALL MOUNTED)
- EMERGENCY EXIT LIGHTS (CEILING MOUNTED)
- RECESSED CAN LIGHT w/ STANDARD TRIM and COMPACT FLUORESCENT LAMP (WARM WHITE COLOR)
- RECESSED CAN LIGHT w/ WALL-WASHER TRIM and COMPACT FLUORESCENT LAMP (WARM WHITE COLOR)
- LIGHTED EXIT SIGN w/ DIRECTIONAL ARROW (CEILING MOUNTED)
- AIR SUPPLY DIFFUSERS
- AIR RETURN GRILLES
- EX — EXHAUST FAN OR EXHAUST GRILLE
- 1 HOUR RATED WALL

CEILING TILE CUTTING DIAGRAM

FOR RECESSED LIGHTS AND OTHER FIXTURES

(ENLARGED SCALE)



CEILING NOTES

1. EXISTING LIGHT FIXTURES IN ROOMS NORTH OF THE MAIN EXIT CORRIDOR HAVE NOT ALL BEEN DOCUMENTED. ADDITIONAL INFORMATION MAY BE FOUND ON ELECTRICAL SHEETS E-2 AND E-3.
2. COORDINATE CEILING LAYOUT WITH ELECTRICAL AND MECHANICAL DRAWINGS. MAKE ADJUSTMENTS TO CEILING GRID (INCLUDING MAIN RUNNER LOCATIONS) AS NECSSARY.
3. AT THE FIRE-RATED MAIN CORRIDOR, ABOVE THE SUSPENDED ACOUSTICAL CEILING IS A 1-HOUR FIRE RATED GYPSUM BOARD ASSEMBLY THAT SPANS THE CORRIDOR.

PLAN NORTH

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DAVID MATTHEW HALE — REGISTERED ARCHITECT — 4288 — 7/2/2012 — NORTH CAROLINA — WAKE FOREST, NC

PROJECT:

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DRAWN BY: DMH
CHECKED BY: DMH

ISSUE DATE: *July 2, 2012*

REVISIONS:

SHEET TITLE:

Reflected Ceiling Plan

7,014 GSF

DRAWING SCALE: *3/16" = 1'-0"*

SHEET NUMBER:

A-1.2

WAKE FOREST POLICE DEPARTMENT - MAIN STATION

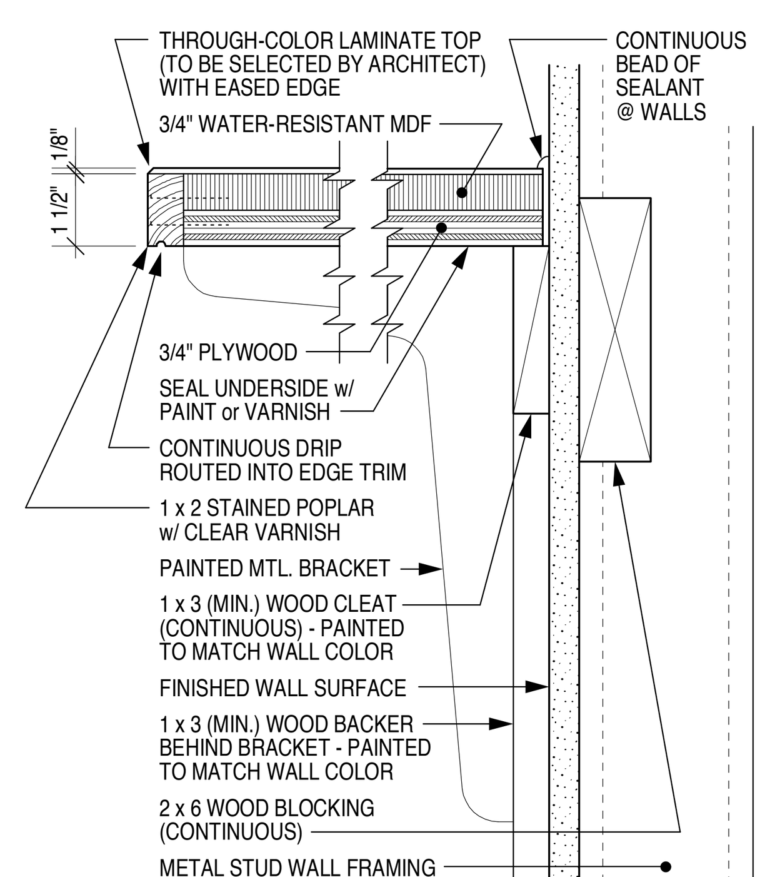
ROOM FINISH SCHEDULE - FIRST FLOOR

REVISED / CORRECTED ON 7 / 5 / 2012

ROOM NUMBER	ROOM NAME	CEILING				CEILING HEIGHT	BASE				FLOOR					WALLS				REMARKS
		NEW 24" x 24" GRID + NEW ACOUSTIC TILE	1 HR RATED DRYWALL ASSEMBLY ABOVE GRID	EXISTING 24" x 24" GRID + NEW ACOUSTIC TILE	EXISTING DRYWALL (REPAIR & REPAINT)		EXISTING BASE TO REMAIN	NEW 4" RESILIENT (RUBBER)	CERAMIC TILE	NO BASE	EXISTING FLOOR FINISH TO REMAIN	NEW 12" x 12" CERAMIC TILE OVER CONC. SLAB	NEW 12" x 12" V.C.T. (VINYL COMPOSITION TILE)	CARPET	1/4" RESINUOUS (EPOXY) OVER CONCRETE	EXISTING PAINTED WALL (NEW PAINT OVER OLD)	NEW GYPSUM BOARD (PRIME & PAINT)	EXISTING PAINTED WALL (NO NEW FINISH)	EXISTING MASONRY TO REMAIN UNFINISHED	N / W / E / S — THE DOTS REPRESENT THE ORIENTATION (LOCATION USING PLAN COMPASS BEARINGS) OF EACH WALL IN EACH ROOM, TO IDENTIFY WHAT FINISH GOES ON WHICH WALL. (REFER TO SITE PLANS FOR "PLAN NORTH")
		1	2	3	4		1	2	3	4	1	2	3	4	5	1	2	3	4	
ñ ñ ñ	COVERED ENTRY				●	+/- 10'-0"				●					●				N, S	
100	LOBBY	●	●			+/- 8'-6"			●			●				N, W	E, S			
101	INTOX. / FINGERPRINT			●		+/- 8'-6"		●					●			N, W, E, S				
102	OFFICE			●		+/- 8'-6"		●						●		N, W, E, S				
103 ñ 104	DISPATCHER	●				+/- 8'-6"		●						●		W, E, S	N			
105	DISPATCH SUPERVISOR			●		+/- 8'-6"		●						●		N, W, E	S			
106	WOMEN'S BATHROOM			●	●	+/- 8'-6"	●				●					N, W, E, S				
107	JANITOR			●		+/- 8'-6"	●				●							N, W, E, S		
108	ELECTRICAL			●		+/- 8'-6"	●				●							N, W, E, S		
109	OFFICE			●		+/- 8'-6"		●						●		N, W, E, S				
110	MEN'S BATHROOM			●	●	+/- 8'-6"	●		●		●					W, E, S	N			
110 a	STORAGE	●				+/- 8'-6"		●					●			N, W, E	S			
111 ñ 112	BREAK ROOM	●				+/- 8'-6"		●					●			N, W, E, S				
113	OLD PATROL ROOM			●		+/- 8'-6"		●						●		N, W, E, S				
114	DATA & COMMUNICATIONS			●		+/- 8'-6"	●				●							N, W, E, S		
115	HALL			●		+/- 8'-6"		●						●		N, W, E, S				
116 ñ 117	NEW PATROL ROOM	●				+/- 8'-6"		●						●		N, W, E, S				
118	OFFICE				●	+/- 8'-6"		●						●		N, W, E, S				
119	OFFICE			●		+/- 8'-6"		●						●		N, W, E, S				
120	HOLDING				●	+/- 8'-6"		●					●					N, W, E, S		LINE WALLS & INSIDE OF DOOR w/ FRP PANELS GLUED TO DRYWALL
121	HOLDING				●	+/- 8'-6"		●					●					N, W, E, S		LINE WALLS & INSIDE OF DOOR w/ FRP PANELS GLUED TO DRYWALL
122 ñ 124	EVIDENCE ROOM				●	+/- 8'-6"		●					●			N, W, E, S				CONVERT PORTIONS OF ROOM'S CEILING FROM GRID TO DRYWALL
125	OFFICE			●		+/- 8'-6"		●						●		N, W, E, S				
126	OFFICE				●	+/- 8'-6"		●						●		N, W, E, S				
128	HALL			●		+/- 8'-6"		●						●		N, W, E, S				
129	HALL			●		+/- 8'-6"		●						●		N, W, E, S				
130	FRONT DESK	●				+/- 10'-0"		●						●			N, W, E, S			
131	UNISEX TOILET ROOM	●				+/- 10'-0"			●			●					N, W, E, S			
132	BACK HALL	●	●			+/- 8'-6"			●			●				N	N, W, E, S			NORTH WALLS INCLUDE EXISTING DRYWALL AND NEW DRYWALL
133	STORAGE	●				+/- 10'-0"		●					●			N	W, E, S			
134	HALL	●				+/- 10'-0"		●						●			N, W, E, S			
135	OFFICE	●				+/- 10'-0"		●						●		N, W, E, S				
136	BREAK	●				+/- 10'-0"		●					●			N, W, E, S				
137	OFFICE	●				+/- 10'-0"		●						●			N, W, E, S			
138	COPY / WORK AREA	●				+/- 10'-0"		●						●			N, W, E, S			
139	CHIEF'S OFFICE	●				+/- 10'-0"		●						●			N, W, E, S			
139a	STORAGE	●				+/- 10'-0"		●						●			N, W, E, S			
139b	STORAGE	●				+/- 10'-0"		●						●			N, W, E, S			
140	CONFERENCE / TRAINING	●				+/- 10'-0"		●						●			N, W, E, S			
141	OFFICE	●				+/- 10'-0"		●						●			N, W, E, S			
142	OFFICE	●				+/- 10'-0"		●						●			N, W, E, S			
143	UNISEX TOILET ROOM	●				+/- 10'-0"			●			●					N, W, E, S			

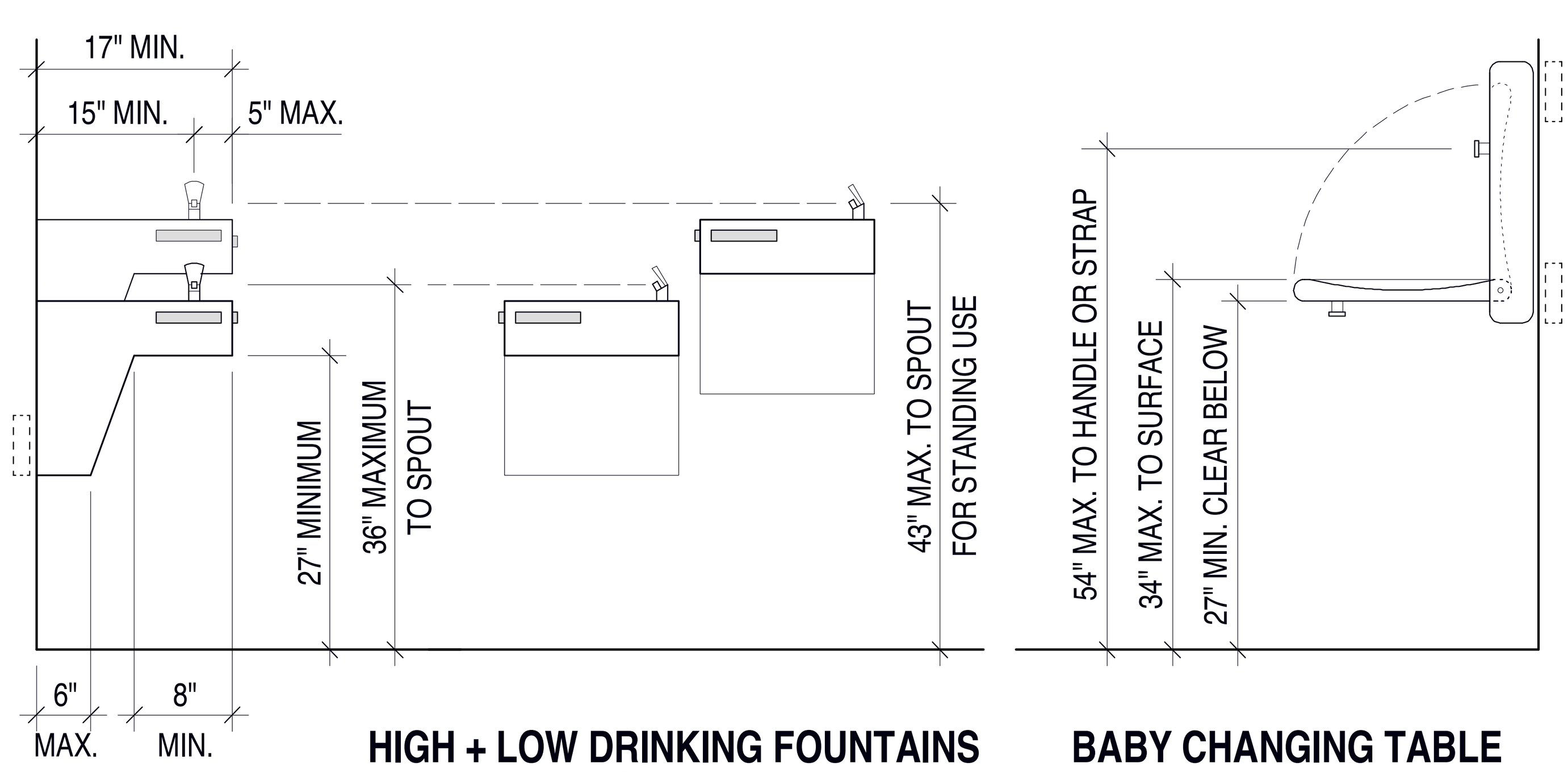
ROOM FINISH SCHEDULE NOTES:

1. CEILING HEIGHTS ARE SUBJECT TO JOB CONDITIONS AND MAY VARY FROM HEIGHT LISTED IN TABLE ABOVE.
2. FOR THE PURPOSE OF THIS TABLE, FINISH SYSTEM DESCRIPTIONS ARE GENERIC. THIS TABLE SHALL NOT BE USED TO LIMIT THE SCOPE OF ANY FINISH WORK. REFER TO PROJECT MANUAL FOR FINISH SYSTEM REQUIREMENTS, INCLUDING SUBSTRATE PREPARATION, NUMBER OF COATS, ETC.



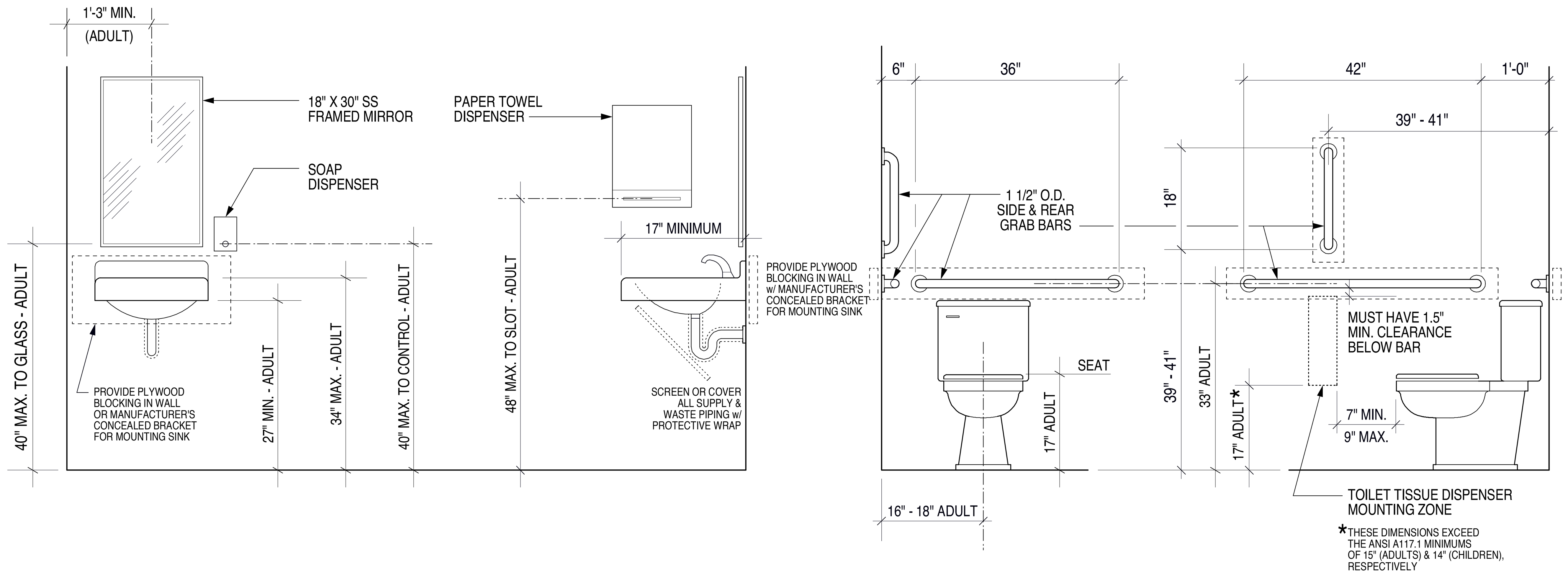
COUNTER DETAIL

SCALE: 3" = 1'-0"



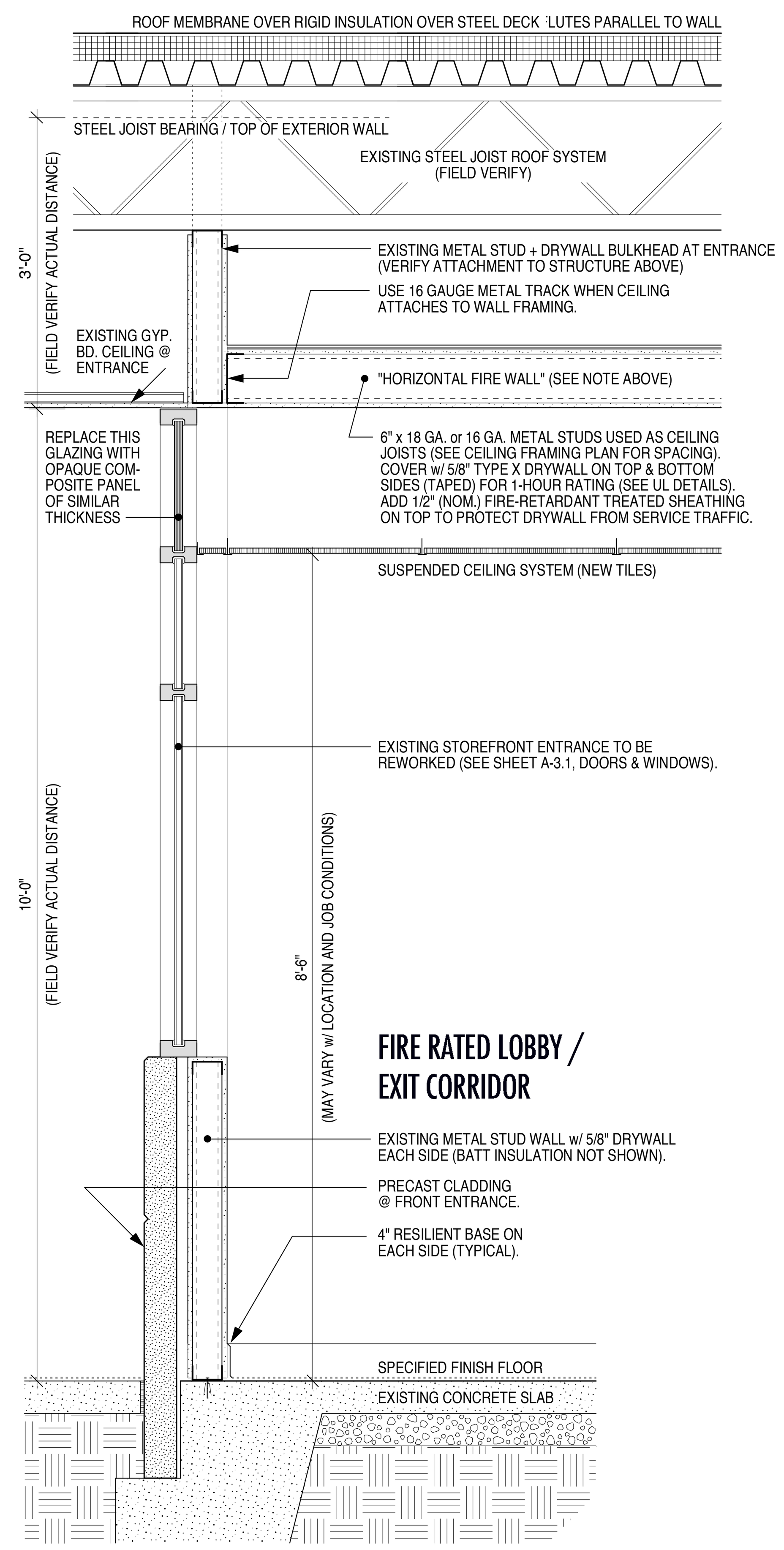
ACCESSIBLE FIXTURE MOUNTING HEIGHTS & DIMENSIONS

SCALE: 3/4" = 1'-0"



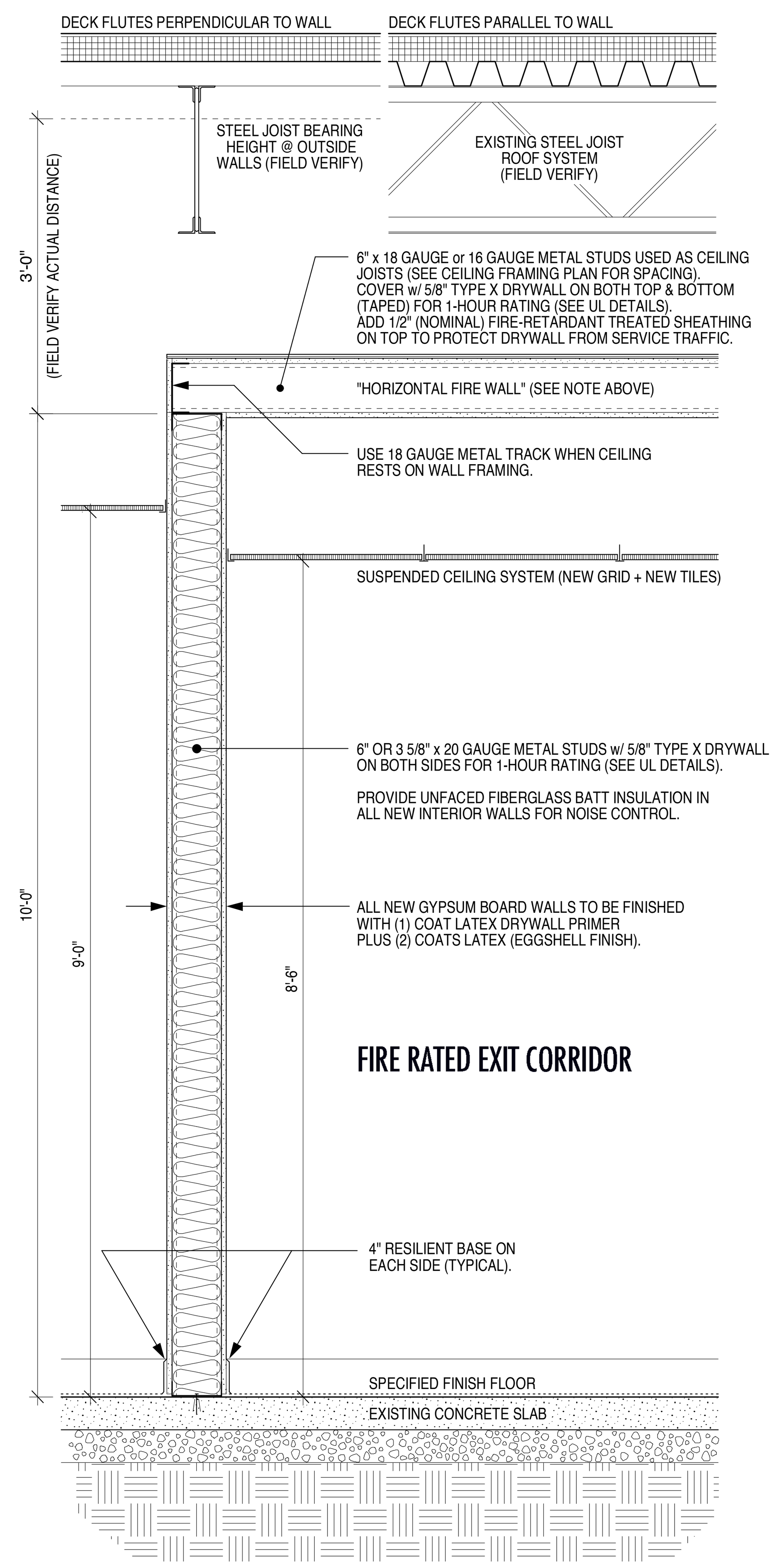
ACCESSIBLE TOILET ROOM NOTES & DIMENSIONS

SCALE: 3/4" = 1'-0"



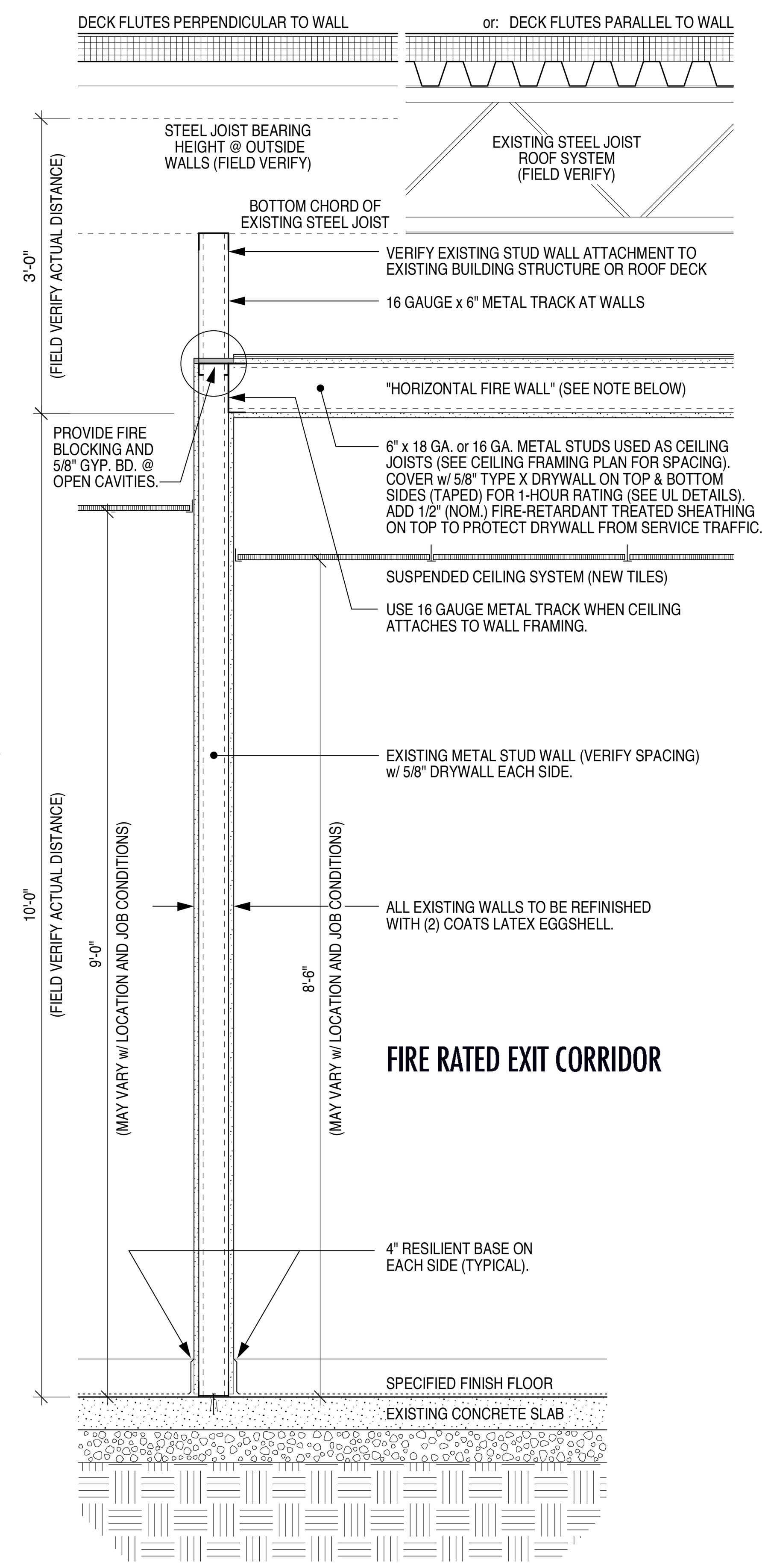
FIRE RATED CORRIDOR CEILING

AT FRONT ENTRANCE — SCALE: 3/4" = 1'-0"



FIRE RATED CORRIDOR CEILING

AT NEW WALL FRAMING — SCALE: 3/4" = 1'-0"



FIRE RATED CORRIDOR CEILING

AT EXISTING WALL FRAMING — SCALE: 3/4" = 1'-0"

HALE ARCHITECTURE

MERGING THE ART OF DESIGN WITH THE SCIENCE OF BUILDING

P. O. Box 1437, Wake Forest, NC 27588

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HALE ARCHITECTURE, PC — REGISTERED ARCHITECTURAL CORPORATION — CERT. NO. 51270 — NORTH CAROLINA — WAKE FOREST, NC

DAVID MATTHEW HALE — REGISTERED ARCHITECT — 4289 — 7/2/2012 — NORTH CAROLINA — WAKE FOREST, NC

PROJECT:

Design Study for Renovations to the Wake Forest Police Station

225 South Taylor Street
Wake Forest, NC 27587

☐ DRAFT - Not For Construction
☑ FINAL - For Construction Use

DRAWN BY: DMH

CHECKED BY: DMH

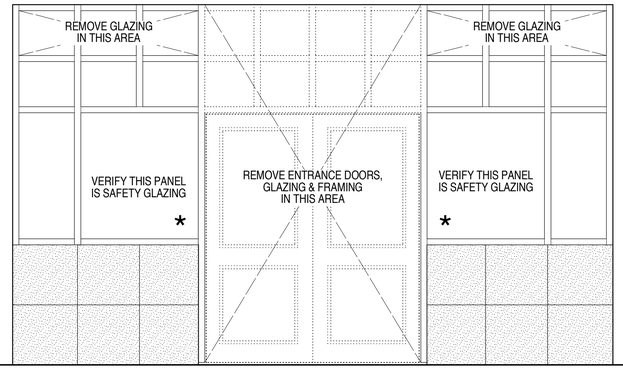
ISSUE DATE: July 2, 2012

REVISIONS:

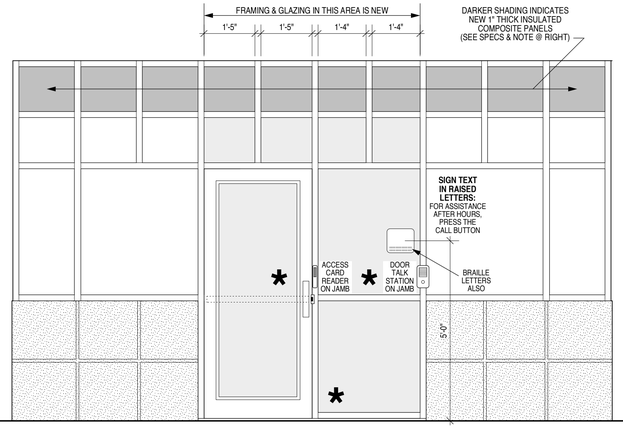
SHEET TITLE: **Sections, Details & Schedules**

DRAWING SCALE: Varies

SHEET NUMBER: **A-2.1**

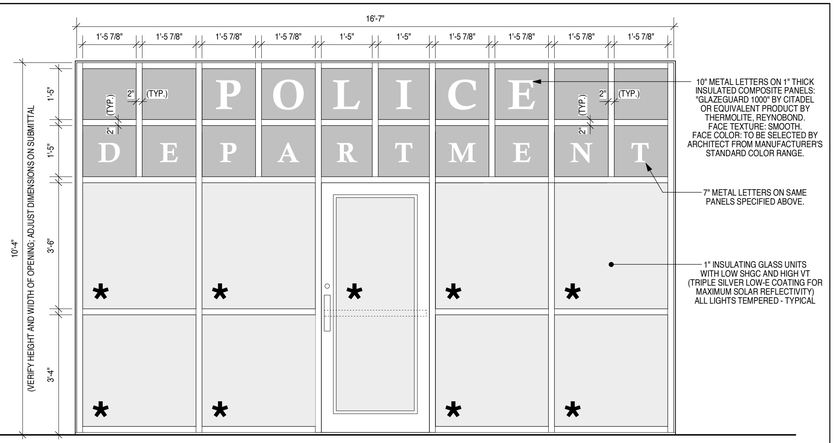


DEMOLITION ELEVATION for STOREFRONT #1b



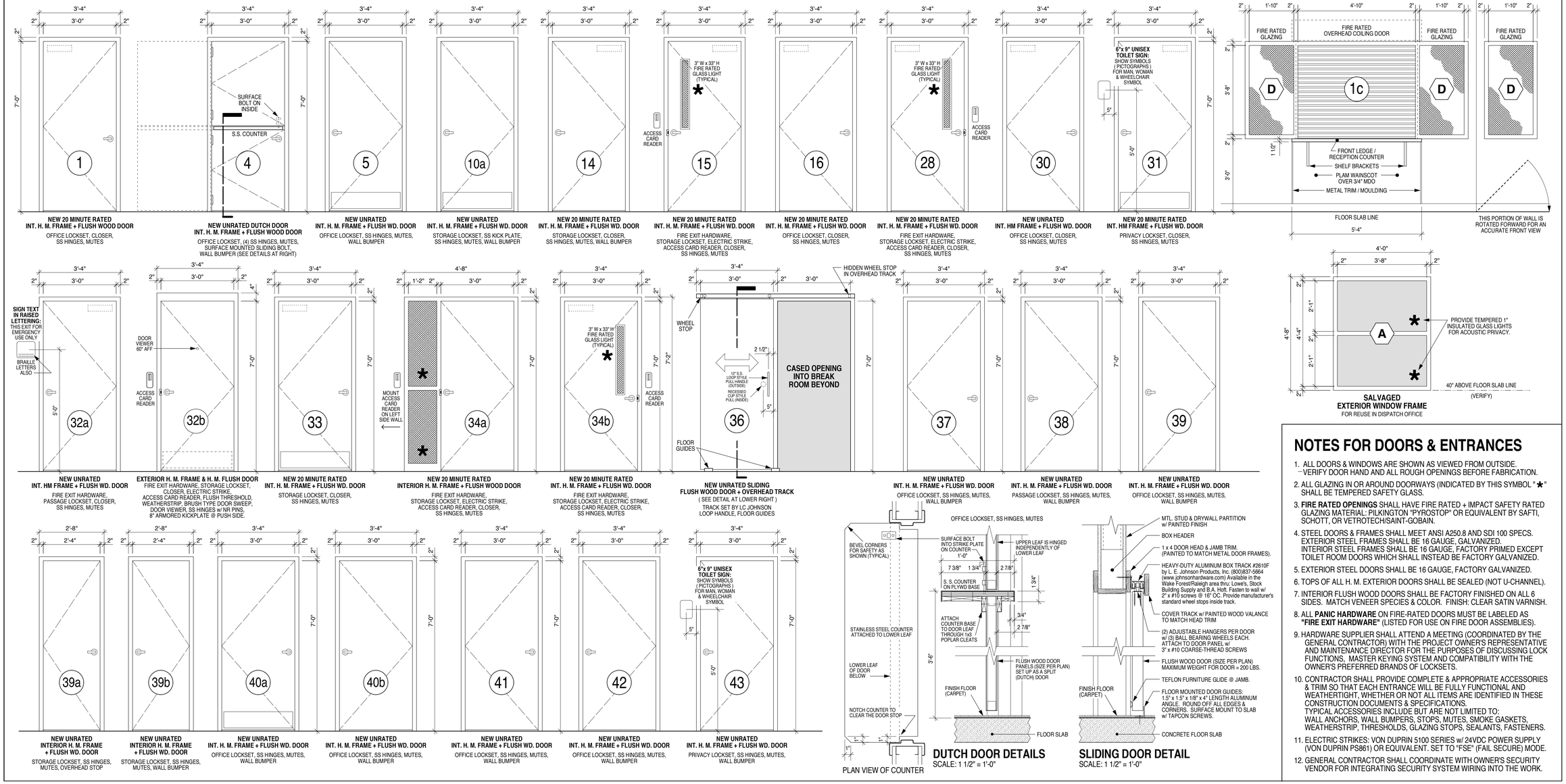
LOBBY STOREFRONT #1b REPLACEMENT ELEVATION

ELECTRIC STRIKE, ACCESS CARD READER, FIRE EXIT HARDWARE (PANIC BAR), CLOSER, PULL HANDLE, PIVOTS, FLUSH THRESHOLD,
(COORDINATE ROUTING OF COMMUNICATIONS WIRE THROUGH FRAME FOR DOOR TALK STATION BY OWNER'S SECURITY SYSTEM VENDOR



NEW EXTERIOR STOREFRONT #1a ELEVATION

FIRE EXIT HARDWARE (PANIC BAR), CLOSER, PULL HANDLE, PIVOTS, FLUSH THRESHOLD, WEATHERSTRIP, AND BRUSH TYPE DOOR SWEEP.



NOTES FOR DOORS & ENTRANCES

1. ALL DOORS & WINDOWS ARE SHOWN AS VIEWED FROM OUTSIDE. VERIFY DOOR HAND AND ALL ROUGH OPENINGS BEFORE FABRICATION.
2. ALL GLAZING IN OR AROUND DOORWAYS (INDICATED BY THIS SYMBOL "★" SHALL BE TEMPERED SAFETY GLASS.
3. **FIRE RATED OPENINGS** SHALL HAVE FIRE RATED + IMPACT SAFETY RATED GLAZING MATERIAL: PILKINGTON "PYROSTOP" OR EQUIVALENT BY SAFTI, SCHOTT, OR VETROTECH/SAINT-GOBAIN.
4. STEEL DOORS & FRAMES SHALL MEET ANSI A250.8 AND SDI 100 SPECS. EXTERIOR STEEL FRAMES SHALL BE 16 GAUGE, GALVANIZED. INTERIOR STEEL FRAMES SHALL BE 16 GAUGE, FACTORY PRIMED EXCEPT TOILET ROOM DOORS WHICH SHALL INSTEAD BE FACTORY GALVANIZED.
5. EXTERIOR STEEL DOORS SHALL BE 16 GAUGE, FACTORY GALVANIZED.
6. TOPS OF ALL H. M. EXTERIOR DOORS SHALL BE SEALED (NOT U-CHANNEL).
7. INTERIOR FLUSH WOOD DOORS SHALL BE FACTORY FINISHED ON ALL 6 SIDES. MATCH VENEER SPECIES & COLOR. FINISH: CLEAR SATIN VARNISH.
8. ALL **PANIC HARDWARE** ON FIRE-RATED DOORS MUST BE LABELED AS **"FIRE EXIT HARDWARE"** (LISTED FOR USE ON FIRE DOOR ASSEMBLIES).
9. HARDWARE SUPPLIER SHALL ATTEND A MEETING (COORDINATED BY THE GENERAL CONTRACTOR) WITH THE PROJECT OWNER'S REPRESENTATIVE AND MAINTENANCE DIRECTOR FOR THE PURPOSES OF DISCUSSING LOCK FUNCTIONS, MASTER KEYING SYSTEM AND COMPATIBILITY WITH THE OWNER'S PREFERRED BRANDS OF LOCKSETS.
10. CONTRACTOR SHALL PROVIDE COMPLETE & APPROPRIATE ACCESSORIES & TRIM SO THAT EACH ENTRANCE WILL BE FULLY FUNCTIONAL AND WEATHERTIGHT, WHETHER OR NOT ALL ITEMS ARE IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS & SPECIFICATIONS. TYPICAL ACCESSORIES INCLUDE BUT ARE NOT LIMITED TO: WALL ANCHORS, WALL BUMPERS, STOPS, MUTES, SMOKE GASKETS, WEATHERSTRIP, THRESHOLDS, GLAZING STOPS, SEALANTS, FASTENERS.
11. ELECTRIC STRIKES: VON DUPRIN 5100 SERIES w/ 24VDC POWER SUPPLY (VON DUPRIN PS861) OR EQUIVALENT. SET TO "FSE" (FAIL SECURE) MODE.
12. GENERAL CONTRACTOR SHALL COORDINATE WITH OWNER'S SECURITY VENDOR FOR INTEGRATING SECURITY SYSTEM WIRING INTO THE WORK.

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DAVID MATTHEW HALE REGISTERED ARCHITECT 4289 7/2/2012 NORTH CAROLINA WAKE FOREST, NC

PROJECT:

Renovations to the Wake Forest Police Station

225 South Taylor Street
Wake Forest, NC 27587

☐ DRAFT - Not For Construction
☑ FINAL - For Construction Use

DRAWN BY: DMH
CHECKED BY: DMH

ISSUE DATE: *July 2, 2012*

REVISIONS:

SHEET TITLE:

Doors, Windows, Entrances & Hardware

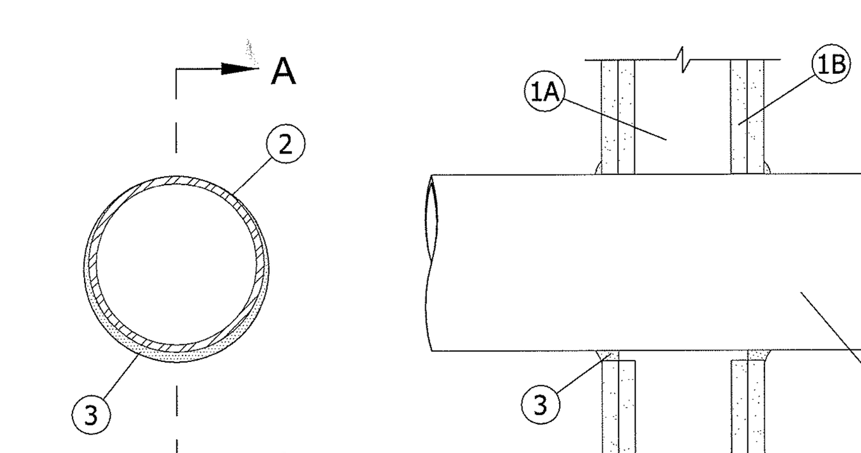
DRAWING SCALE: *1/2" = 1'-0"*

SHEET NUMBER:

A-3.1

System No. W-L-1088

F Ratings - 1 & 2 Hr. (See Item 1)
T Rating - 0 Hr.



Section A-A

1. **Wall Assembly -** The 1 or 2 hr. fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs -** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) O.C. with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min. 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) O.C.
   B. **Gypsum Board* -** 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 6-3/4 in. (171 mm).

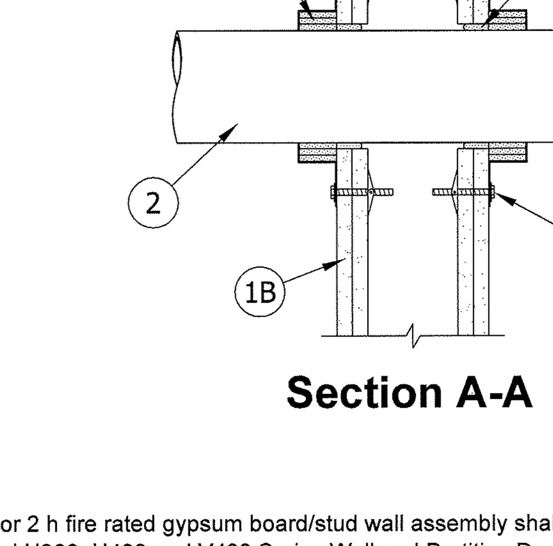
   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Through Penetrant -** One metallic pipe, tubing or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between pipes, tubing or conduits and periphery of opening shall be min 0 in. (point contact) to max 5/8 in. (16 mm). Pipe, tubing or conduit to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, tubing or conduits may be used:
   A. **Steel Pipe -** Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 6 in. (152 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Copper Tubing -** Nom 6 in. (152 mm) diam (or smaller) Type M (or heavier) copper tubing.
   D. **Copper Pipe -** Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   E. **Conduit -** Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing, nom 4 in. (102 mm) diam (or smaller) galv steel conduit or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.
3. **Fill, Void or Cavity Material* - Sealant -** Min 5/8 in. (16 mm) thickness of fill material within annulus, flush with both surfaces of wall. Additional fill material installed such that a min 1/4 in. (6 mm) thick crown is formed around the penetrating item lapping 1/2 in. (13 mm) beyond the periphery of the opening.

   SPECIFIED TECHNOLOGIES INC - SpecSeal LC 150 Sealant, SpecSeal LE600 Sealant

*Bearing the UL Classification Mark

System No. W-L-2059

F Ratings - 1 and 2 Hr (See Items 2 and 3)
T Ratings - 3/4, 1, 1-1/2 and 2 Hr (See Items 2 and 3)
L Rating At Ambient - 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft



Section A-A

1. **Wall Assembly -** The 1 or 2 h fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 and V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs -** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board* -** 5/8 in. (16 mm) thick, 4 ft (1219 mm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 5 in. (127 mm).
2. **Through-Penetrants -** One nonmetallic pipe or conduit to be centered within the firestop system. The annular space shall be max 1/4 in. (6 mm). Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. **Polyvinyl Chloride (PVC) Pipe -** Nom 4 in. (102 mm) diam (or smaller) Schedule 40 or 80 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. **When Schedule 80 PVC pipe is used, the F and T Ratings are 1 hr. When Scheduled 80 PVC pipe is used in closed (process or supply) piping systems, the F and T Ratings are equal to the assembly rating of the wall in which it is installed.**
   B. **Rigid Nonmetallic Conduit+ -** Nom 4 in. (102 mm) diam (or smaller) Schedule 40 or 80 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70). **When Schedule 80 PVC conduit is used, the F and T Ratings are 1 hr.**
   C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe -** Nom 4 in. (102 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.
   D. **Acrylonitrile Butadiene Styrene (ABS) Pipe -** Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid or foamed core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   E. **Fire Retardant Polypropylene (FRPP) Pipe -** Nom 4 in. (102 mm) diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

   F. **Polyvinylidene Fluoride (PVDF) Pipe -** Nom 4 in. (102 mm) diam (or smaller) Schedule 40 PVDF pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   G. **Fiberglass Reinforced Pipe (FRP) Pipe -** Nom 4 in. (102 mm) diam (or smaller) glass fiber reinforced thermosetting resin pipe for use in closed (process or control) or vented (drain, waste or vent) piping systems. When FRP pipe is used, T Rating is 3/4 hr.
   H. **High Density Polyethylene (HDPE) Pipe -** Nom 4 in. (102 mm) diam (or smaller) Schedule 40 HDPE pipe for use in closed (process or supply) piping systems.
3. **Firestop System -** The firestop system shall consist of the following:
   A. **Fill, Void or Cavity Material* - Sealant -** Fill material forced into annular space to max extent possible. Caulk shall be installed flush with both surfaces of wall assembly.

   SPECIFIED TECHNOLOGIES INC - SpecSeal 100, 101, 102, 105, 120 or 129 Sealant, SpecSeal LCI Sealant, or Pensil 300 Sealant
   B. **Fill, Void or Cavity Material - Wrap Strip -** Nom 1/8 or 3/16 in. (3.2 or 4.8 mm) thick intumescent material faced on both sides with a plastic film, supplied in 2 in. (51 mm) wide strips or nom 1/4 in. (6 mm) thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2 in. (38 mm) wide strips. The layers of wrap strips are individually wrapped around the through-penetrant with ends butted and held in place with masking tape. Butted ends in successive layers shall be aligned.

   Except as noted in Item 2, the F and T Rating of the firestop system is dependent upon the fire rating of wall, diam of through penetrant and the number of wrap strips as tabulated below:

Fire Rating of Wall Hr	Max Diam of Through Penetrant In. (mm)	No. of Wrap Strip Layers	F Rating Hr	T Rating Hr
1	1-1/2 (38)	1	1	1
2	1-1/2 (38)	1	2	1-1/2
1	2 (51)	1	1	1
2	2 (51)	1	2	1-1/2
1	3 (76)	2	1	1
2	3 (76)	2	2	2
1	4 (102)	3	1	1
2	4 (102)	3	2	2

   SPECIFIED TECHNOLOGIES INC - SpecSeal BLU Wrap Strip, SpecSeal BLU2 Wrap Strip or SpecSeal RED Wrap Strip
   C. **Steel Collar -** Collar fabricated from coils of precut 0.016 in. (0.4 mm) thick (30 MSG) galv sheet steel available from wrap strip manufacturer. Collar shall be min 1-1/2 in. (38 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs for securement to the concrete floor or wall. Retainer tabs, 3/4 in. (19 mm) wide tapering down to 1/4 in. (6 mm) wide and located opposite the anchor tabs, are folded 90 degree toward pipe surface to maintain the annular space around the pipe and to retain the wrap strips. Steel collar wrapped around wrap strips and pipe with a 1 in. (25 mm) wide overlap along its perimeter joint and secured together by means of a min 1/2 in. (13 mm) wide by 0.028 in. (0.7 mm) thick stainless steel hose clamp installed at mid-depth of the steel collar. As an alternate to the steel hose clamp, the steel collar may be secured together by means of three No. 8 by 1/4 in. (6 mm) long steel sheet metal screws when more than one layer of wrap strip is used.

   Wrap strip/collar assembly is slid along the through-penetrant until abuts the surface of the wall. Collar secured to wall by 1/8 in. (3.2 mm) diam by 1-3/4 in. (44 mm) long steel molly bolts in conjunction with 1-1/4 in. (32 mm) diam steel fender washers. The number of molly bolts used is dependent upon the nom diam of the through penetrant. Two molly bolts, symmetrically located, are required for nom 1-1/2 in. (38 mm) and 2 in. (51 mm) diam through penetrants. Three molly bolts, symmetrically located, are required for nom 2-1/2 in. (64 mm) and 3 in. (76 mm) diam through penetrants. Four molly bolts, symmetrically located, are required for nom 3-1/2 in. (89 mm) and 4 in. (102 mm) diam through penetrants. Steel collars are installed on each side of wall.
   D. **Firestop Device* -** (Optional, Not Shown) - As an alternate to Item 3B and 3C, galv steel collar lined with an intumescent material sized to fit the specific diam of the through-penetrant. Device shall be installed around through-penetrant in accordance with accompanying installation instructions. Device incorporates anchor tabs for securement to each surface of wall assembly by means of 1/8 in. (3 mm) diam by 1-3/4 in. (45 mm) long steel molly bolts in conjunction with 1/4 in. (6 mm) diam by 1-1/2 in. (38 mm) diam steel fender washers.

   SPECIFIED TECHNOLOGIES INC - SpecSeal Firestop Collar, SpecSeal LCC Collar. When SpecSeal LCC Collar is used, the max annular space shall be 1/8 in. (3 mm) for max 2-1/2 in. (64 mm) diam pipe and shall be max 1/4 in. (6 mm) for pipe larger than 2-1/2 in. (64 mm) diam.

*Bearing the UL Classification Mark

PI.0 PLUMBING SCHEDULES

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WASTE
P1H	ADA FLUSH VALVE WATER CLOSET	TOTO CT705ELN OR EQUAL BY AMERICAN STANDARD OR KOHLER	FLOOR MOUNTED, VITREOUS CHINA, 1.28 GPF LOW CONSUMPTION SIPHON JET FLUSHING TOILET COMPLYING WITH ASME 112.19.2. TOILET SHALL BE ELONGATED FRONT BOWL. PROVIDE SC534 OPEN FRONT SEAT LESS COVER. SLOAN CROWN 111-1.28 FLUSHOMETER OR EQUAL BY ZURN OR TOTO. TOP OF SEAT SHALL BE 17-19 INCHES AFF FOR ADA.	-	1"	3"
P2	WALL MOUNT LAVATORY	TOTO LT307.4 OR EQUAL BY AMERICAN STANDARD OR KOHLER	VITREOUS CHINA LAVATORY WITH BACKSPLASH COMPLYING WITH ASME 112.19.2. TOP OF RIM SHALL BE 34 INCHES AFF FOR ADA. PROVIDE WITH LAV-GUARD PROTECTORS FOR SUPPLY AND DRAIN LINES. PROVIDE JR SMITH 0700 (CONCEALED ARMS) WITH 19" ARMS 0800 (WALL SUPPORT PLATE). USE A METERING TYPE FAUCET SIMILAR TO CHICAGO 3300-CP.	1/2"	1/2"	2"
P3	FLOOR DRAIN	WATTS FD-200-A OR EQUAL BY ZURN OR JR SMITH	ON GRADE EPOXY COATED CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, WEEP HOLES, ADJUSTABLE ROUND NICKEL BRONZE STRAINER, AND NO HUB OUTLET. PROVIDE TRAP PRIMER CONNECTION OPTION IF NOTED.			3"
P4	WATER HAMMER ARRESTOR	ZURN Z1700 SERIES OR EQUAL BY WATTS OR SIOUX CHIEF	INSTALL ON BRANCH LINES PER MFG'S INSTRUCTIONS. PROVIDE ACCESS PANEL WHERE NECESSARY WHERE LOCATED ABOVE HARD CEILINGS OR WITHIN WALLS..		VARIES	
P5	INTERIOR HOSE BIBB	MIFAB MHY-55 OR APPROVED EQUAL	PROVIDE CHECK VALVE AND ANTI-SIPHON PROTECTION IF NOT INTEGRAL TO UNIT		1/2"	
P6	SINK DOUBLE BOWL	ELKAY LRADQ3319 OR EQUAL BY FRANKE OR MOEN	TOP MOUNTED 18 GA STAINLESS STEEL. MAX BOWL DEPTH 6 INCHES FOR WHEEL CHAIR ACCESSIBLITY-USE DELTA FAUCET SET 340-WF OR EQUAL BY MOEN OR KOHLER.	1/2"	1/2"	2"
P7	REFRIGERATOR VALVE BOX	OATEY OR APPROVED EQUAL	HIGH IMPACT POLYSTYRENE BOX WITH 1/4 TURN BRASS BALL VALVE. COMPLIANT WITH NSF 61, SECTION 9.		3/4"	
P8	DRINKING FOUNTAIN	OASIS P8ACSL OR EQUAL BY ELKAY OR STERN WILLIAMS	ADA COMPLIANT FOR ADULT AND CHILD. 8.0 GPH OF 50°F WATER AT 90°F AMBIENT. PROVIDE ACCESSORY APRON FOR ADA COMPLIANCE AS NECESSARY	-	3/8"	2"
FCO	FLOOR CLEANOUT	ZURN, WATTS, JR SMITH	EPOXY COATED CAST IRON FLOOR CLEANOUT WITH ROUND ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB INLET.			4"
WCO	WALL CLEANOUT	ZURN, WATTS, OR JR SMITH	CAST IRON CLEANOUT FERRULE WITH THREADED BRASS COUNTERSUNK CLEANOUT PLUG, STAINLESS STEEL ACCESS COVER, AND VANDAL PROOF STAINLESS STEEL SCREW			4"
RD	ROOF DRAIN	ZURN Z121 OR APPROVED EQUAL	12 in DIAMETER ROOF DRAIN. DURA-COATED CAST IRON BODY WITH COMBINATION MEMBRANE FLASHING CLAMP/GRAVEL GUARD AND LOW SILHOUETTE CAST IRON DOME.			4"
AAV	AIR ADMITTANCE VALVE	STUDOR REDIVENT OR APPROVED EQUAL	ANSI/ASSE 1051 LISTED. NSF STANDARD 14. PROVIDE PVC OR ABS CONNECTOR AS NECESSARY. CONNECT VALVE TO PIPING PER MANUFACTURER. INSTALL IN THE VERTICAL, UPRIGHT POSITION AFTER ROUGH-IN AND PRESSURE TESTING OF THE SYSTEM. PROVIDE WALL BOX IF NOT ABOVE CEILING OR OTHERWISE CONCEALED.			2"

LINETYPE LEGEND

COLD WATER SUPPLY	————————
HOT WATER SUPPLY	——— — — ———
SANITARY SEWER LINE	————————
VENT LINE	— — — — — — — —

GENERAL PLUMBING NOTES:

1. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR (PC) SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR.
2. THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
3. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
4. ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD PARTY AGENCY. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
5. THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2012 NORTH CAROLINA (NC) PLUMBING CODE, 2012 NC BUILDING CODE, AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MORE STRINGENT SHALL BE USED. THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
6. THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING.
9. EXTEND DOMESTIC WATER FROM WITHIN THE BUILDING AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE. PIPING TO BE INSTALLED AS FLUSH AS POSSIBLE TO WALLS AND CEILINGS. ALL OVERHEAD DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED CLEARLY MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B-88. USE BRAZED JOINTS ON ALL COPPER PIPING 1-1/2 INCH AND LARGER. ALL PLASTIC PIPE, FITTINGS, AND COMPONENTS SHALL BE THIRD PARTY CERTIFIED AS CONFORMING TO NSF 14. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF 8-PERCENT AND SHALL CONFORM TO NSF 61. ALL WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180°F.
10. ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER-PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE-AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL-OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
11. BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLON SEATS, 150 PSI WSP, AND COMPLY WITH MSS SP-110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP-80, TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 62, BRONZE WITH INTEGRAL SEAT AND AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER-SILICON BRONZE STEM AND SOLID-WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS; PROVIDE ACCESS DOORS IF REQUIRED. VALVES SHALL BE BY NIBCO, WATTS, OR STOCKHAM.
12. IT SHALL BE THE RESPONSIBILITY OF THE PC TO ADEQUATELY SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT. ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL ADEQUATELY SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING AGAINST CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT. FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE NC PLUMBING CODE. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE.
13. SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR-EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS-AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION-BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER.
14. THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE LOCATED ON THE HEATED SIDE OF THE WALL INSULATION. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177.
15. COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1-1/2 INCH THICK INSULATION. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER. ALL JOINTS, SEAMS AND FITTINGS MUST BE SEALED. ON SYSTEMS OPERATING ABOVE AMBIENT, THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES WHERE A VAPOR SEAL MUST BE MAINTAINED, INSULATION SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN MOISTURE AND VAPOR RETARDER. ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FIRESTOP OR FIRESAFING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A FACTORY APPLIED ALL SERVICE JACKET WITH SELF-SEALING LAP. WHITE-KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS; CONFORMING TO ASTM C 1136 TYPE 1; VAPOR RETARDER; WITH A SELF-SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING.
16. ALL INSULATION PRODUCTS SHALL CONTAIN RECOVERED MATERIALS AS REQUIRED BY EPA'S CPG AND RELATED RECYCLED CONTENT RECOMMENDATIONS. NO INSULATION INSTALLED ON THE PROJECT SHALL BE MATERIAL MANUFACTURED USING CHLOROFLUOROCARBONS, NOR SHALL CFCS BE USED IN THE INSTALLATION OF THE PRODUCTS. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
17. FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME A112.18.1. FAUCETS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9. FIXTURE FITTINGS FAUCETS, AND DIVERTERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF HOT WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT HAND SIDE OF THE FIXTURE FITTING.
18. INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE HANDI-LAV GUARD INSULATION KIT BY TRUEBRO OR EQUAL.
19. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPILPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022.
20. THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
21. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND ENSURE THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER PIPING TO THE EXISTING BUILDING DRAIN AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION.
22. TRENCHING, COMPACTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE NC PLUMBING CODE. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
23. ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE ADEQUATE PROTECTION AGAINST FREEZING PER 305.6.1. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
24. FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE SERVICE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74). USE MINIMUM 2 INCH SIZE UNDERGROUND. SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE PIPE FITTINGS (ASTM D 3311) MAY ALSO BE USED. DO NOT USE PVC PIPE FOR APPLICATIONS WHERE THE WASTE WATER TEMPERATURE EQUALS OR EXCEEDS 140°F.
25. FOR ABOVE GRADE SANITARY WASTE AND VENT PIPING, USE SERVICE WEIGHT CAST IRON NO HUB TYPE WITH COUPLINGS (CISPI 301). SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE FITTINGS (ASTM D 3311) MAY BE USED IF PERMITTED BY LOCAL CODE. DO NOT INSTALL PVC IN RETURN AIR PLENUMS. ALL VENT AND BRANCH VENT PIPES SHALL BE SO GRADED AND CONNECTED AS TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE.
26. SOIL AND WASTE LINES 2-1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM.
27. FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
28. FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAIN PIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE COUPLING MANUFACTURER SHALL BE UTILIZED.
29. BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO ADEQUATELY SUPPORT THE WEIGHT OF THE PIPING.
30. HORIZONTAL DRAIN PIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.10. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINSEED OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR RODDING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING.
31. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 917 OF THE NC PLUMBING CODE. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051.
32. INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
33. THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS.
34. THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED.
35. THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOZE OUT.
36. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
37. THE PC SHALL PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CEILING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT.
38. SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH NORTH CAROLINA PLUMBING CODE, SECTIONS 312.2, 312.3, AND 312.5.
39. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES, SHALL BE MADE WATER TIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.
40. PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
41. AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT.
42. PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

PI.1 PLUMBING GENERAL NOTES

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17304 MICHAEL W. KILIAN 6/13/12
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

RENOVATIONS TO:
WAKE FOREST POLICE STATION
225 S. TAYLOR ST
WAKE FOREST, NC 27587

REVISIONS:

NO.	DATE	DESCRIPTION

ISSUED:

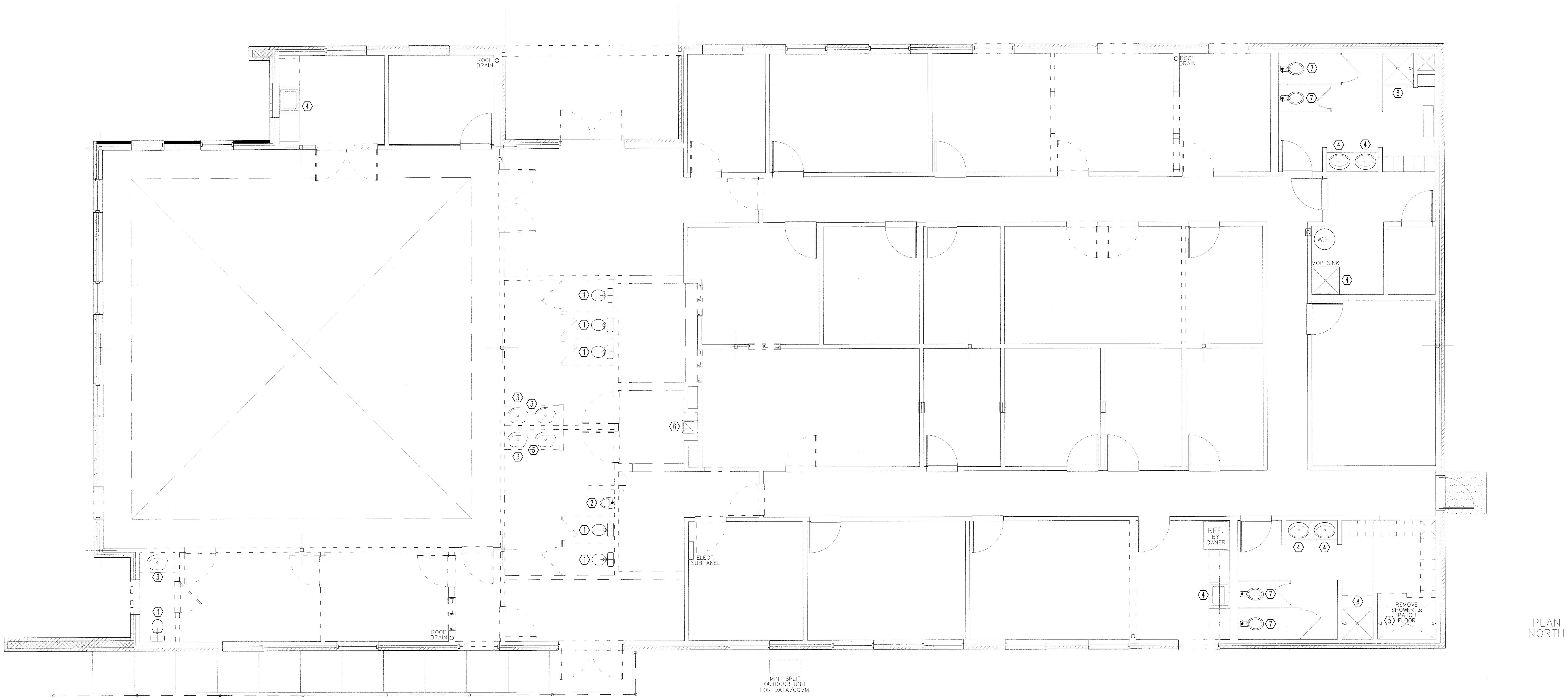
NO.	DATE	DESCRIPTION
A	2012-06-14	PERMIT SET

DRAWN BY:
CHECKED BY: MWK

PLUMBING SCHEDULES
GENERAL NOTES

SHEET NO.
P1

PROJECT NO: 12-079



HEX PLAN NOTES

1. REMOVE EXISTING TOILET AND DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. DEMO EXISTING WATER AND WASTE LINES BACK AS FAR AS POSSIBLE TO NEAREST BRANCH LINES AND CAP.
2. REMOVE EXISTING URINAL AND DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. DEMO EXISTING WATER AND WASTE LINES BACK AS FAR AS POSSIBLE TO NEAREST BRANCH LINES AND CAP.
3. REMOVE EXISTING LAVATORY AND DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. DEMO EXISTING WATER AND WASTE LINES BACK AS FAR AS POSSIBLE TO NEAREST BRANCH LINES AND CAP.
4. EXISTING SINK DRAIN AND SUPPLY LINES TO REMAIN.
5. DISCONNECT EXISTING SHOWER FAUCET FROM DOMESTIC WATER LINES AND DEMO LINES BACK TO NEAREST BRANCHES. DEMO SHOWER DRAIN AND CAP DRAIN LINE BELOW SLAB.
6. REMOVE EXISTING DRINKING FOUNTAIN. RETAIN DRAIN AND SUPPLY LINES FOR CONNECTION TO NEW HI-LO FIXTURE.
7. EXISTING TOILET DRAIN AND SUPPLY LINES TO REMAIN.
8. EXISTING SHOWER TO REMAIN.

P2.0 PLUMBING DEMO PLAN-SCALE: 3/16"

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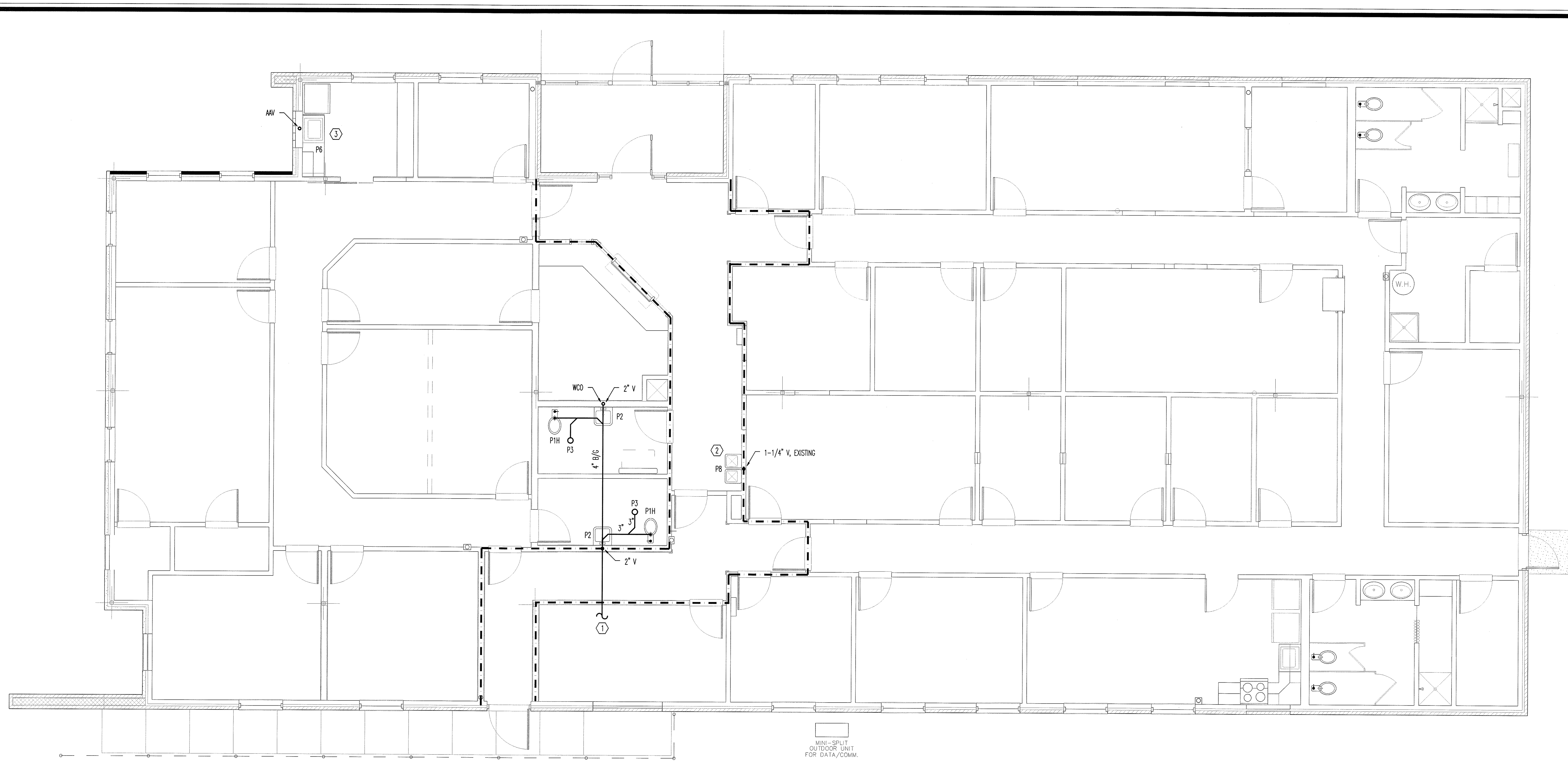
PLUMBING DEMO PLAN

SHEET NO.
P2

PROJECT NO: 12-079



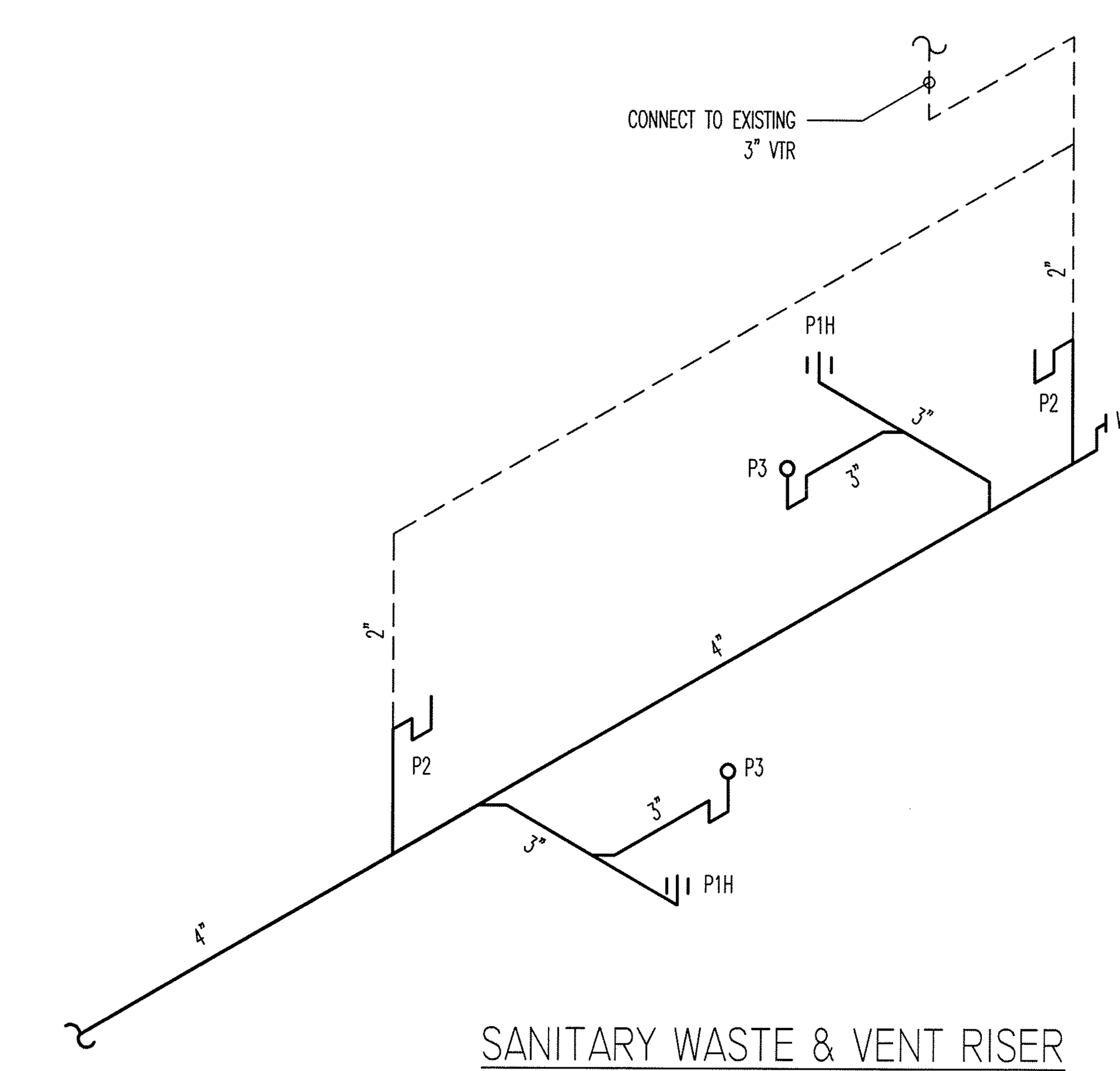
1 HR FIRE PARTITION

CORRIDOR HAS A 1 HR RATED CEILING.

PLUMBING LINES SIZING TABLE									
FIXTURE TYPE	OCCUPANCY	QTY	DRAINAGE FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
			EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOTAL
WATER CLOSET (FLUSH VALVE)	PUBLIC	6	4	24	10	0	10	0	60
SHOWER	PUBLIC	2	2	4	3	3	4	6	8
LAVATORY	PUBLIC	6	1	6	1.5	1.5	2	9.0	12
BREAK ROOM SINK	PUBLIC	2	2	4	1.5	1.5	2	3.0	4
DRINKING FOUNTAIN	PUBLIC	1	0.5	0.5	0.25	0	0.25	0	0.25
MOP SINK	PUBLIC	1	2	2	2.25	2.25	3	2.25	3
EMERGENCY FLOOR DRAIN	PUBLIC	4	0	0	0	0	0	0	0
DEMAND FIXTURE	GPM	QTY	TOTAL GPM				TOTAL DFU	40.5	
HOSE BIBBS	5	3	15				TOTAL WFSUs	20.3	87.3
							GPM	20	64
							OTHER FIXTURES' GPM	0	15
							TOTAL GPM	20	79
EXISTING BUILDING DRAIN	4 in	AS A RESULT OF WORK, TOTAL DFUs WILL DECREASE BY 16, AND TOTAL WSFUs WILL DECREASE BY 39.							
EXISTING WATER LINE	2-1/2 in								

HEX PLAN NOTES

1. CONNECT TO THE EXISTING BUILDING SANITARY SEWER LINE. FIELD VERIFY EXACT LOCATION, DEPTH, AND DIRECTION OF FLOW OF LINE AT POINT OF CONNECTION.
2. NEW HI-LO DRINKING FOUNTAIN. RECONNECT TO EXISTING DRAIN AND SUPPLY LINES.
3. INSTALL NEW BREAK ROOM SINK. CONNECT TO EXISTING DRAIN AND SUPPLY LINES IN WALL.



CONNECT TO EXISTING BUILDING DRAIN. FIELD VERIFY EXACT CONNECTION POINT, INVERT, AND DIRECTION OF FLOW.

SANITARY WASTE & VENT RISER
NO SCALE

P3.0 SANITARY WASTE AND VENT PLAN-SCALE: 3/16"

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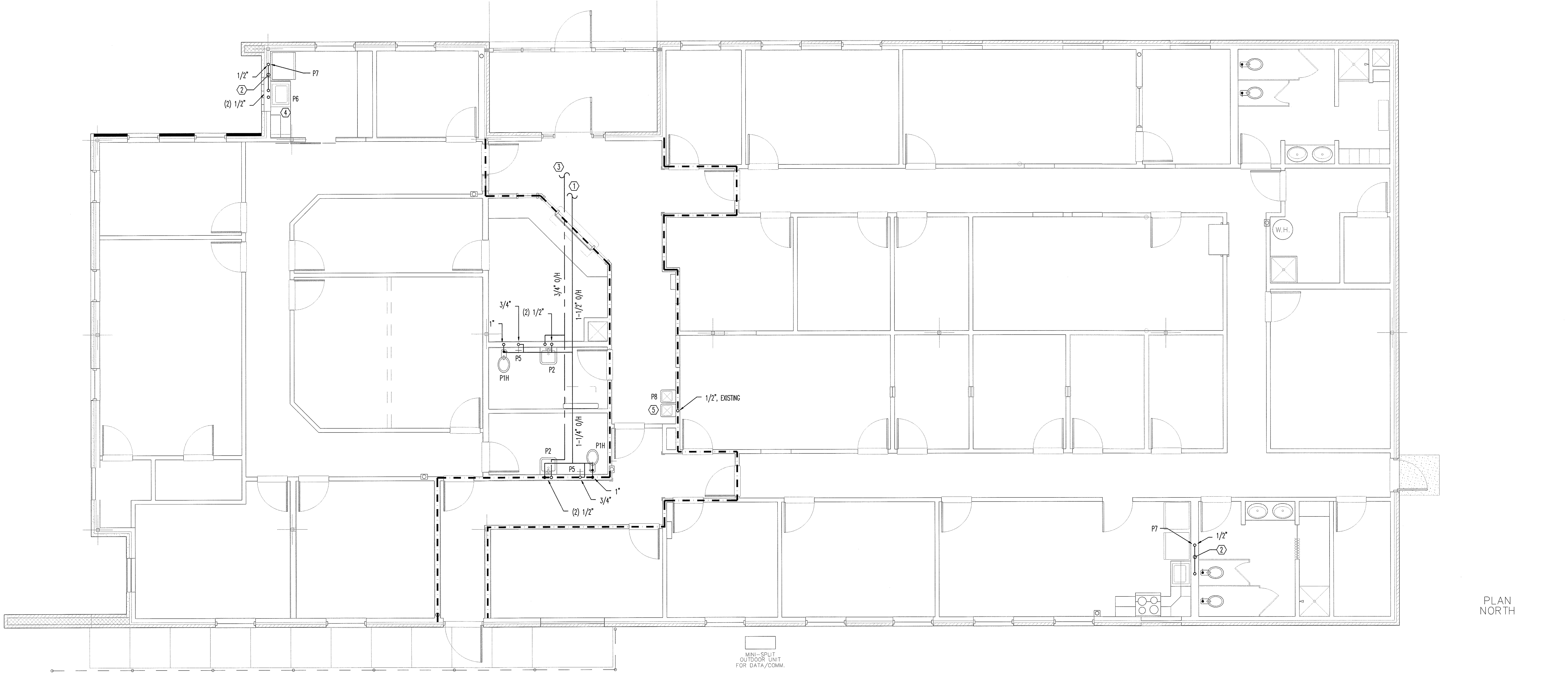
DRAWN BY:
CHECKED BY: MWK

SANITARY WASTE AND VENT PLAN

SHEET NO.
P3

PROJECT NO: 12-079



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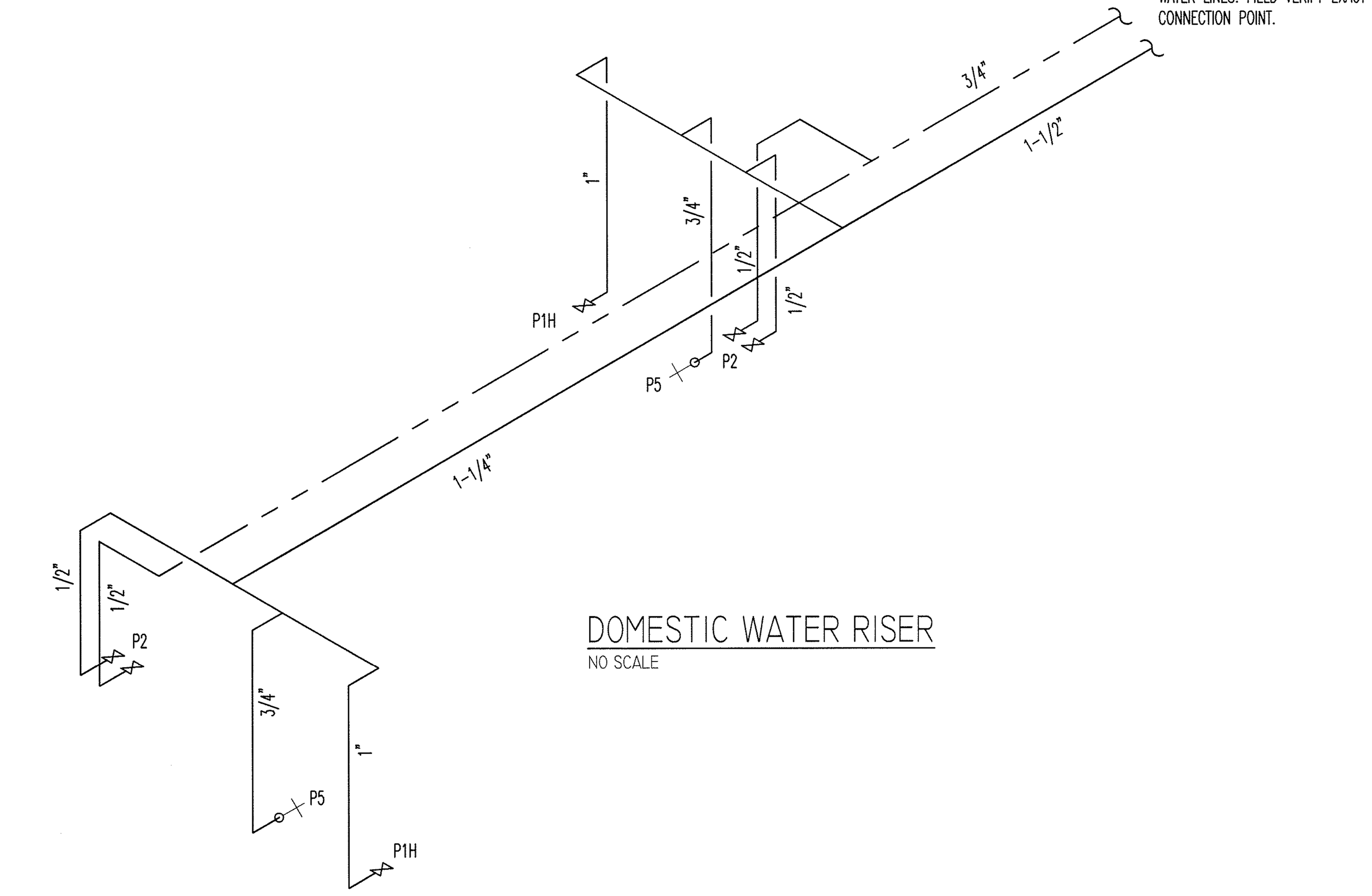
CORRIDOR HAS A 1 HR RATED CEILING.

HEX PLAN NOTES

1. CONNECT TO EXISTING DOMESTIC WATER LINE IN VICINITY SHOWN. FIELD VERIFY EXACT LOCATION. LINE TO BE CONNECTED TO MUST BE 1-1/2" MINIMUM SIZE.
2. CONNECT TO EXISTING WATER LINE IN WALL AND PROVIDE CONNECTION FOR NEW REFRIGERATOR.
3. CONNECT TO EXISTING HOT WATER LOOP. LOCATION SHOWN APPROXIMATE. FIELD VERIFY LOCATION.
4. CONNECT NEW BREAK ROOM SINK TO EXISTING HOT AND COLD WATER LINE IN WALL.
5. RECONNECT EXISTING HI-LO DRINKING FOUNTAIN TO EXISTING SUPPLY LINE.



DOMESTIC WATER RISER
NO SCALE

P4.0 DOMESTIC WATER PLAN-SCALE: 3/16"

HALE ARCHITECTURE
P. O. BOX 1437
Wake Forest, NC 27588-1437
Phone (919) 554-4000

Kilian Engineering Inc.
Michael W. Kilian, PE
mkilian@kilianengineering.com
P.O. Box 3301, 115-C Young Street
Henderson North Carolina 27536
P 252.438.8778 F 252.438.8741
Corporate License C-2277
Plumbing ■ Mechanical
Electrical ■ Fire Alarm

SEAL

SEAL

RENOVATIONS TO:
WAKE FOREST POLICE STATION
225 S. TAYLOR ST
WAKE FOREST, NC 27587

REVISIONS:

NO.	DATE	DESCRIPTION

ISSUED:

NO.	DATE	DESCRIPTION
A	2012-06-14	PERMIT SET

DRAWN BY:
CHECKED BY: MWK

DOMESTIC WATER PLAN

SHEET NO.
P4

PROJECT NO: 12-079

MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE	PRESCRIPTIVE
THERMAL ZONE	ZONE 4A
EXTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	23.1°F
COOLING DESIGN DRY BULB	91.7°F
COOLING DESIGN WET BULB	75.6°F
INTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	70°F
COOLING DESIGN DRY BULB	75°F
COOLING RELATIVE HUMIDITY	50%
HEATING LOAD:	BTU/H
SENSIBLE COOLING LOAD:	BTU/H
LATENT COOLING LOAD:	BTU/H
MECHANICAL SPACING CONDITIONING SYSTEM:	
UNITARY	AIR COOLED DX
DESCRIPTION OF UNIT(S)	SPHPs
BOILER	N/A
TOTAL BOILER OUTPUT	N/A
CHILLER	N/A
TOTAL CHILLER CAPACITY	N/A
EQUIPMENT EFFICIENCIES:	SEE SCHEDULES
EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS):	SEE BELOW

DESIGNER STATEMENT:

TO THE BEST OF MY KNOWLEDGE, THE MECHANICAL DESIGN FOR THIS BUILDING COMPLIES WITH MECHANICAL AND EQUIPMENT REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE, 2012 EDITION-ENERGY.

ROOFTOP PACKAGE HEAT PUMP SCHEDULE

MARK	MFG / MODEL #	NOM CAPCTY	SUP AIR	OUTSIDE AIR	COMP	IFM	OFM	HEAT @ 17°F	ELEC HEAT	ENT WB/DB	ESP	TOT COOLING	SEN COOLING	SEER	COP 47	HSPF	VOLT/PH	MCA	MOCP	WEIGHT	NOTES
		TONS	CFM	CFM	NO-RLA	NO-FLA	NO-FLA	MBH	kW	°F	IN WC	MBH	MBH							LBS	
RTU-1	TRANE WSC036E3R0A	3.0	1200	175	1-13.5	1-5.0	1-2.0	22.7	9.0	67/80	0.6	36.2	25.4	13.0	3.4	8.0	208/3	55.1	60	514.0	
RTU-2	TRANE WSC036E3R0A	3.0	1200	125	1-13.5	1-5.0	1-2.0	22.7	9.0	67/80	0.6	36.2	25.4	13.0	3.4	8.0	208/3	55.1	60	514.0	
RTU-3	TRANE WSC048E3R0A	4.0	1600	100	1-16.0	1-5.0	1-2.5	25.8	9.0	67/80	0.75	47.6	35.1	13.0	3.5	8.0	208/3	58.8	60	661.0	
RTU-4	TRANE WSC048E3R0A	4.0	1600	150	1-16.0	1-5.0	1-2.5	25.8	9.0	67/80	0.75	47.6	35.1	13.0	3.5	8.0	208/3	58.8	60	661.0	
RTU-5	TRANE WSC048E3R0A	4.0	1400	200	1-16.0	1-5.0	1-2.5	25.6	9.0	67/80	0.75	46.6	32.4	13.0	3.5	8.0	208/3	58.8	60	661.0	

1. PROVIDE COMPATIBLE ROOF CURB
2. PROVIDE DUCT DETECTOR IN RETURN DUCT. PROVIDE RELAY FOR KILLING POWER TO UNIT'S FAN
3. PROVIDE WITH 0-100% ECONOMIZER WITH BAROMETRIC RELIEF
4. PROVIDE WITH COMPARATIVE ENTHALPY CONTROLS FOR ECONOMIZER
4. PROVIDE HEAT STRIP OUTDOOR TEMPERATURE LOCKOUT TO PREVENT SUPPLEMENTAL HEAT OPERATION IN RESPONSE TO THE THERMOSTAT BEING CHANGED TO A WARMER SETTING. SET NO LOWER THAN 35°F AND NO HIGHER THAN 40°F
5. PROVIDE HINGED ACCESS DOORS
6. PROVIDE HAIL GUARDS FOR COIL
7. PROVIDE 2" MERV 7 FILTER
8. REPLACE ALL FILTERS AT PROJECT'S COMPLETION
9. PROVIDE CO2 SENSOR FOR MODULATING OUTSIDE AIR WHEN NOT IN ECONOMIZER MODE
10. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH NIGHT-TIME SET BACK
11. HEATER RATED AT 208V
12. OR EQUAL BY CARRIER, LENNOX, OR YORK
13. ANY EQUIPMENT SUBSTITUTIONS MUST EQUAL OR EXCEED EFFICIENCIES LISTED (RATINGS PER ARI)
14. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES

EXHAUST FAN SCHEDULE

MARK	MFG / MODEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA	SONES	NOTES
EF-1,2	GREENHECK SP-A125	CEILING	0.25	104	120/1	1	2.1	1-3
EF-3	GREENHECK G-075	ROOF	0.25	195	120/1	1	3.6	2-4

1. PROVIDE WITH PITCHED ROOF CAP
2. PROVIDE WITH SQUARE TO ROUND DUCT ADAPTER AS NECESSARY
3. OR EQUAL BY LOREN COOK OR PENNBARRY
4. PROVIDE ROOF CURB, BACKDRAFTER DAMPER, AND ALUMINUM ROOF CAP WITH BIRDSCREEN

REGISTER & GRILLE SCHEDULE

MARK	MFG	MODEL #	SIZE	TYPE	DESCRIPTION	NOTES
A	HART & COOLEY	HVS	24X24	LAY-IN	4-WAY DIFFUSER, BRIGHT WHITE	1
B	HART & COOLEY	SRE	9X9	SURFACE	STEEL, 4 WAY DIFFUSER, BRIGHT WHITE	1,2
C	HART & COOLEY	ARE	9X9	SURFACE	ALUMINUM, 4 WAY DIFFUSER, BRIGHT WHITE	1,2
D	HART & COOLEY	92VHV		SIDE	BRIGHT WHITE	1
E	PRICE	MSD	9X9	CEILING	LATTICE FACE SECURITY GRILLE	1,2
R	HART & COOLEY	RH45T	24X24	LAY-IN	ALUMINUM, LAY IN RETURN GRILLE	1
R1	HART & COOLEY	RH45	8X8	SURFACE	ALUMINUM SURFACE MOUNT RETURN GRILLE	1,2
R2	HART & COOLEY	RH45	12X12	SURFACE	ALUMINUM SURFACE MOUNT RETURN GRILLE	1,2

1. OR EQUAL BY PRICE, METAL-AIRE, CARNES, OR NAILOR
2. PROVIDE BALANCING DAMPER AS PART OF DIFFUSER/GRILLE

ENERGY RECOVERY VENTILATOR

MARK	MFG / MODEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA	TEMP EFF	NOTES
ERV-1	RENEWAIRE EV450IN	STATIC PLATE	0.9	380	120	7.2	75%	1

1. PROVIDE HANGING BRACKETS AND 10"⌀ ROUND TRANSITION KITS

DUCTLESS SPLIT SYSTEM HEAT PUMP SCHEDULE

MARK	OUTSIDE UNIT MFG / MODEL #	INSIDE UNIT MODEL #	NOM CAPACITY	SUPPLY AIR	COMP	OFM	IFM	HEATING @ 17°F	TOT COOLING	SEN COOLING	LINE SIZE		VOLT/PH	SEER	HSPF	MCA	MOCP
			TONS	CFM	NO-RLA	NO-FLA	NO-FLA	MBH	MBH	MBH	GAS	LIQ				AMPS	AMPS
DS-1	MITSUBISHI PUZ-A18NHA3	PLA-A18BA	1.5	420	1-12.0	1-0.4	1-0.5	13.0	18.0	14.6	1/2	1/4	208/1	14.2	9.8	13	15

1. OR EQUAL BY DAIKIN, SAMSUN, OR LG

Building Data		Table 403.3				Breathing Zone Outside Air			Zone Outdoor Air				System Outdoor Air	
Zone (room)	Area (Az) sq. ft	Rp cfm/p	Occ Density p/sq ft	Pz Zone Pop	Ra cfm/sq ft	Vbz-p cfm	Vbz-a cfm	Vbz Total cfm	Ez	Vozp cfm	Voza cfm	Vozt cfm	Vpz (Primary Air Flow)	Zp (Primary OA Fraction)
Holding Room 120	82	5.0	25	2	0.12	10	10	20	0.8	13	12	25	100	0.25
Holding Room 121	82	5.0	25	2	0.12	10	10	20	0.8	13	12	25	100	0.25
Evidence 122	280	5.0	10	3	0.18	14	50	64	0.8	18	63	81	400	0.20
Office 119	104	5.0	5	1	0.06	3	6	9	0.8	3	8	11	125	0.09
Office 118	84	5.0	5	0	0.06	2	5	7	0.8	3	6	9	100	0.09
Patrol Room 117	237	5.0	5	1	0.06	6	14	20	0.8	7	18	25	300	0.08
Office 125	83	5.0	5	0	0.06	2	5	7	0.8	3	6	9	100	0.09
Office 126	104	5.0	5	1	0.06	3	6	9	0.8	3	8	11	125	0.09
Office 127	134	5.0	5	1	0.06	3	8	11	0.8	4	10	14	150	0.09
Hall 115	300	0.0	0	0	0.06	0	18	18	0.8	0	23	23	100	0.23
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00

Max Zp	0.25
Ev	0.8
Ps (Actual System Pop)	9
D, Diversity Factor	0.85
Vou	178
Vot	222

Unit Tag	RTU-3

Building Data		Table 403.3				Breathing Zone Outside Air			Zone Outdoor Air				System Outdoor Air	
Zone (room)	Area (Az) sq. ft	Rp cfm/p	Occ Density p/sq ft	Pz Zone Pop	Ra cfm/sq ft	Vbz-p cfm	Vbz-a cfm	Vbz Total cfm	Ez	Vozp cfm	Voza cfm	Vozt cfm	Vpz (Primary Air Flow)	Zp (Primary OA Fraction)
Intox & Fingerprint	85	5.0	5	0	0.06	2	5	7	0.8	3	6	9	140	0.06
Office 102	174	5.0	5	1	0.06	4	10	15	0.8	5	13	18	275	0.07
Dispatcher	264	5.0	5	1	0.06	7	16	22	0.8	8	20	28	430	0.07
Supervisor	100	5.0	5	1	0.06	3	6	9	0.8	3	8	11	175	0.06
Corridor	236	0.0	0	0	0.06	0	14	14	0.8	0	18	18	100	0.18
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00

Max Zp	0.18
Ev	0.9
Ps (Actual System Pop)	7
D, Diversity Factor	2.25
Vou	87
Vot	96

Unit Tag	RTU-1

Building Data		Table 403.3				Breathing Zone Outside Air			Zone Outdoor Air				System Outdoor Air	
Zone (room)	Area (Az) sq. ft	Rp cfm/p	Occ Density p/sq ft	Pz Zone Pop	Ra cfm/sq ft	Vbz-p cfm	Vbz-a cfm	Vbz Total cfm	Ez	Vozp cfm	Voza cfm	Vozt cfm	Vpz (Primary Air Flow)	Zp (Primary OA Fraction)
Break Room 134	88	5.0	5	0	0.06	2	5	7	0.8	3	7	9	140	0.07
Office 135	88	5.0	5	0	0.06	2	5	7	0.8	3	7	9	140	0.07
Copy 138	135	5.0	5	1	0.06	3	8	11	0.8	4	10	14	200	0.07
Conference 130	278	5.0	50	14	0.06	70	17	86	0.8	87	21	108	450	0.24
Front Desk 137	145	5.0	5	1	0.06	4	9	12	0.8	5	11	15	150	0.10
Lobby 136	248	0.0	0	0	0.06	0	15	15	0.8	0	19	19	200	0.09
Hall 139	340	0.0	0	0	0.06	0	20	20	0.8	0	26	26	200	0.13
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00

Max Zp	0.24
Ev	0.9
Ps (Actual System Pop)	16
D, Diversity Factor	0.99
Vou	159
Vot	177

Unit Tag	RTU-5

Building Data		Table 403.3				Breathing Zone Outside Air			Zone Outdoor Air				System Outdoor Air	
Zone (room)	Area (Az) sq. ft	Rp cfm/p	Occ Density p/sq ft	Pz Zone Pop	Ra cfm/sq ft	Vbz-p cfm	Vbz-a cfm	Vbz Total cfm	Ez	Vozp cfm	Voza cfm	Vozt cfm	Vpz (Primary Air Flow)	Zp (Primary OA Fraction)
Data Comm 114	125	5.0	5	1	0.06	3	8	11	0.8	4	9	13	200	0.07
Patrol 113	174	5.0	5	1	0.06	4	10	15	0.8	5	13	18	300	0.06
Break Rm 111	285	5.0	5	1	0.06	7	17	24	0.8	9	21	30	450	0.07
Storage 110a	65	0.0	0	0	0.06	0	4	4	0.8	0	5	5	50	0.10
Hall 115	278	0.0	0	0	0.06	0	17	17	0.8	0	21	21	100	0.21
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00

Max Zp	0.21
Ev	0.9
Ps (Actual System Pop)	5
D, Diversity Factor	1.71
Vou	81
Vot	90

Unit Tag	RTU-2

Building Data		Table 403.3				Breathing Zone Outside Air			Zone Outdoor Air				System Outdoor Air	
Zone (room)	Area (Az) sq. ft	Rp cfm/p	Occ Density p/sq ft	Pz Zone Pop	Ra cfm/sq ft	Vbz-p cfm	Vbz-a cfm	Vbz Total cfm	Ez	Vozp cfm	Voza cfm	Vozt cfm	Vpz (Primary Air Flow)	Zp (Primary OA Fraction)
Office 142	141	5.0	5	1	0.06	4	8	12	0.8	4	11	15	225	0.07
Chief 143	373	5.0	5	2	0.06	9	22	32	0.8	12	28	40	500	0.08
Office 133	184	5.0	5	1	0.06	5	11	16	0.8	6	14	20	300	0.07
Office 129	186	5.0	5	1	0.06	5	11	16	0.8	6	14	20	300	0.07
Storage 141	150	0.0	0	0	0.12	0	18	18	0.8	0	23	23	250	0.09
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00
				0		0	0	0	0.8	0	0	0	1	0.00

Max Zp	0.09
Ev	1.0
Ps (Actual System Pop)	10
D, Diversity Factor	2.26
Vou	121
Vot	121

Unit Tag	RTU-4

M1.0 MECHANICAL SCHEDULES

GENERAL MECHANICAL NOTES:

1. "PROVIDE" MEANS TO FURNISH AND INSTALL. MECHANICAL CONTRACTOR (MC) SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR NECESSARY FOR A COMPLETE INSTALLATION.
2. THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
3. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
4. THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2012 NORTH CAROLINA MECHANICAL AND BUILDING CODES AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MORE STRINGENT SHALL BE USED. THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
5. THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
6. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
7. THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
8. ALL MECHANICAL MATERIALS SHALL BE NEW AND FREE OF DEFECT AND LISTED AND LABELED BY UL OR AN APPROVED THIRD PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SUCH EXAMPLES ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
9. THE MC SHALL PROVIDE ALL DX UNITARY HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. AIR-COOLED ROOFTOP PACKAGE HEAT PUMPS, GAS-ELECTRIC UNITS, AND AIR-CONDITIONERS SHALL BE BY TRANE, CARRIER, OR YORK. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
10. THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED. FANS SHALL BE BY GREENHECK, LOREN COOK, OR PENNBARRY.
11. THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
12. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
13. DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P.
14. IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. THE MC SHALL MAKE FIELD MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS.
15. EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES SHALL BE DETERMINED AS FOLLOWS:
    - 15.1. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS.
    - 15.2. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.
16. INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R-VALUE SHALL BE A MINIMUM NECESSARY TO COMPLY WITH NC ENERGY CONSERVATION CODE. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84-04. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNAUF INSULATION, OWENS CORNING CORP, OR CERTAINTEED CORPORATION.
17. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
18. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE BLOCKED.
19. WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOUVER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE; SEAL TO LOUVER FRAME AND DUCT.
20. DUCTS CONNECTING TO A FURNACE SHALL HAVE A CLEARANCE TO COMBUSTIBLES IN ACCORDANCE WITH THE FURNACE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
21. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS, AND ELSEWHERE AS INDICATED.
22. CONSTRUCT T's, BENDS, AND ELBOWS WITH RADII OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANES.
23. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE WHEREVER POSSIBLE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
24. MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A-95 OR UL 181B-98. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAT THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
25. ALL ADHESIVES AND SEALANTS SHALL BE THOSE WITH THE LOWEST POSSIBLE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
26. FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181-96.
27. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
28. DUCT INSULATION R-VALUES SHALL COMPLY WITH THE LATEST EDITION OF THE NORTH CAROLINA ENERGY CODE.
29. IT SHALL BE THE RESPONSIBILITY OF THE MC TO ADEQUATELY SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL ADEQUATELY SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CORD IS NOT TO BE USED FOR EQUIPMENT OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
30. DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS, GIRDERS, OR BEAMS.
31. CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
32. THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILINGS, INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE BY HART & COOLEY, PRICE, METAL-AIRE, NAILOR, OR CARNES.
33. AIR FILTERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 605 OF THE NC MECHANICAL CODE.
34. PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY, RETURN, AND EXHAUST SYSTEMS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS, GRILLES, AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, GRILLE, OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE WITHIN +/- 10%.
35. MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555-99), CURTAIN TYPE, WITH INTEGRAL FACTORY SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE NC MECHANICAL CODE. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADIATION DAMPERS SHALL BE UL LABELED (UL 555C-96) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE BY RUSKIN, NAILOR, OR LLOYD INDUSTRIES.
36. MC SHALL INSTALL A SMOKE DETECTOR-UL LISTED FOR DUCT INSTALLATION (UL 268A-98)-IN EACH UNIT'S RETURN UPSTREAM OF ANY FILTERS, OUTSIDE AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72. DUCT SMOKE DETECTOR SUPERVISION SHALL COMPLY WITH 606.4.1 OF THE NC MECHANICAL CODE. IF THE BUILDING IS (TO BE) EQUIPPED WITH A FIRE ALARM SYSTEM, THE FIRE ALARM SYSTEM CONTRACTOR SHALL FURNISH AND WIRE ALL DUCT SMOKE DETECTORS. IF THE BUILDING IS NOT PROVIDED WITH A FIRE ALARM SYSTEM, THE MC SHALL FURNISH AND WIRE THE DUCT SMOKE DETECTORS AND A/V DEVICE. IT SHALL BE THE RESPONSIBILITY OF THE MC TO INSTALL ALL SMOKE DUCT DETECTORS PER NFPA AND MFG'S INSTALLATION INSTRUCTIONS REGARDLESS OF WHO FURNISHES THE DEVICES.
37. MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS OF SECTION 803.2.3 OF THE NORTH CAROLINA ENERGY CODE.
38. MC SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.
39. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST TERMINATIONS AND PLUMBING VENT THRU ROOFS.
40. UNITS PROVIDED WITH ECONOMIZERS SHALL ALSO BE PROVIDED WITH BAROMETRIC RELIEF AND COMPARATIVE ENTHALPY CONTROLS.
41. MAINTAIN CLEARANCES FOR ALL UNITS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 10 FEET FROM ROOF EDGE.
42. MC SHALL INSTALL ONE (1) CEILING MOUNTED EXHAUST FAN FOR EACH RESTROOM AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
43. P-TRAPS MUST BE INSTALLED ON ALL UNITS. P-TRAPS AND CONDENSATE LINES SHALL BE 1 INCH. P-TRAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN PLENUMS; OTHERWISE, THEY SHALL BE TYPE M COPPER.
44. MC SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.
45. CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.
46. ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN.
47. IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
48. ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN PLENUM AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS.
49. MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

M1.1 MECHANICAL GENERAL NOTES

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17304 MICHAEL W. KILIAN 6/14/12
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

RENOVATIONS TO:
WAKE FOREST POLICE STATION
225 S. TAYLOR ST
WAKE FOREST, NC 27587

REVISIONS:

NO.	DATE	DESCRIPTION

ISSUED:

NO.	DATE	DESCRIPTION
A	2012-06-14	PERMIT SET

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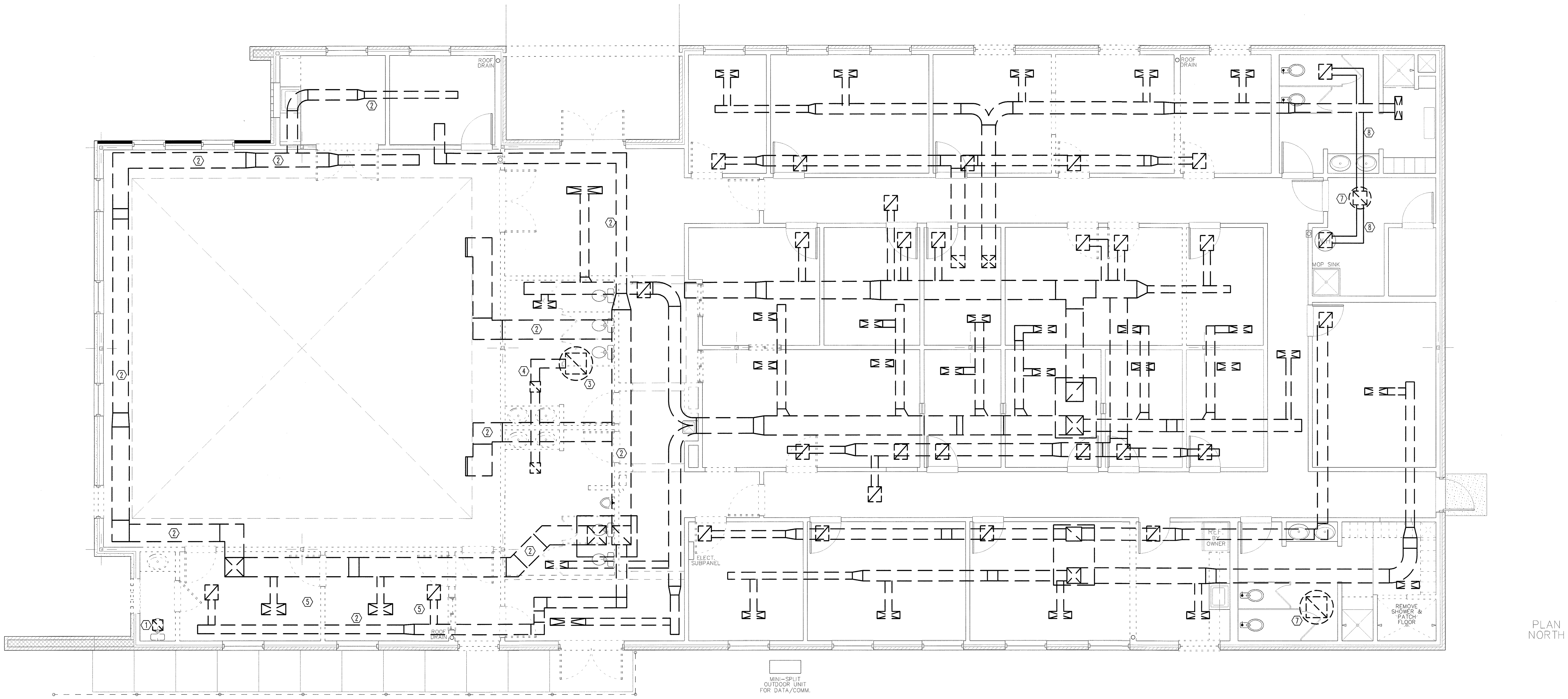
MECHANICAL SCHEDULES
GENERAL NOTES

SHEET NO.
M1

PROJECT NO: 12-079



M2.0 MECHANICAL DEMO PLAN-SCALE: 3/16"

HEX PLAN NOTES

1. DEMO EXISTING EXHAUST FAN AND ASSOCIATED DUCT WORK. ABANDON EXISTING ROOF PENETRATION IN PLACE.
2. DEMO EXISTING DUCT WORK.
3. DEMO EXISTING EXHAUST FAN. PATCH ROOF OPENING.
4. DEMO EXISTING EXHAUST DUCTWORK AND GRILLES.
5. DEMO EXISTING GRILLES AND DIFFUSERS IN THIS ROOM (NOT SHOWN).
6. NOT USED.
7. EXISTING EXHAUST FAN TO REMAIN. AS PART OF WORK, MECHANICAL CONTRACTOR SHALL MEASURE EXHAUST AIR FLOW IN RESTROOMS AND ELECTRICAL ROOM AND REPORT TO ENGINEER AND OWNER.
8. EXISTING EXHAUST DUCTS TO REMAIN.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17304 MICHAEL W. KILIAN 6/14/12
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

RENOVATIONS TO:
WAKE FOREST POLICE STATION
225 S. TAYLOR ST
WAKE FOREST, NC 27587

REVISIONS:

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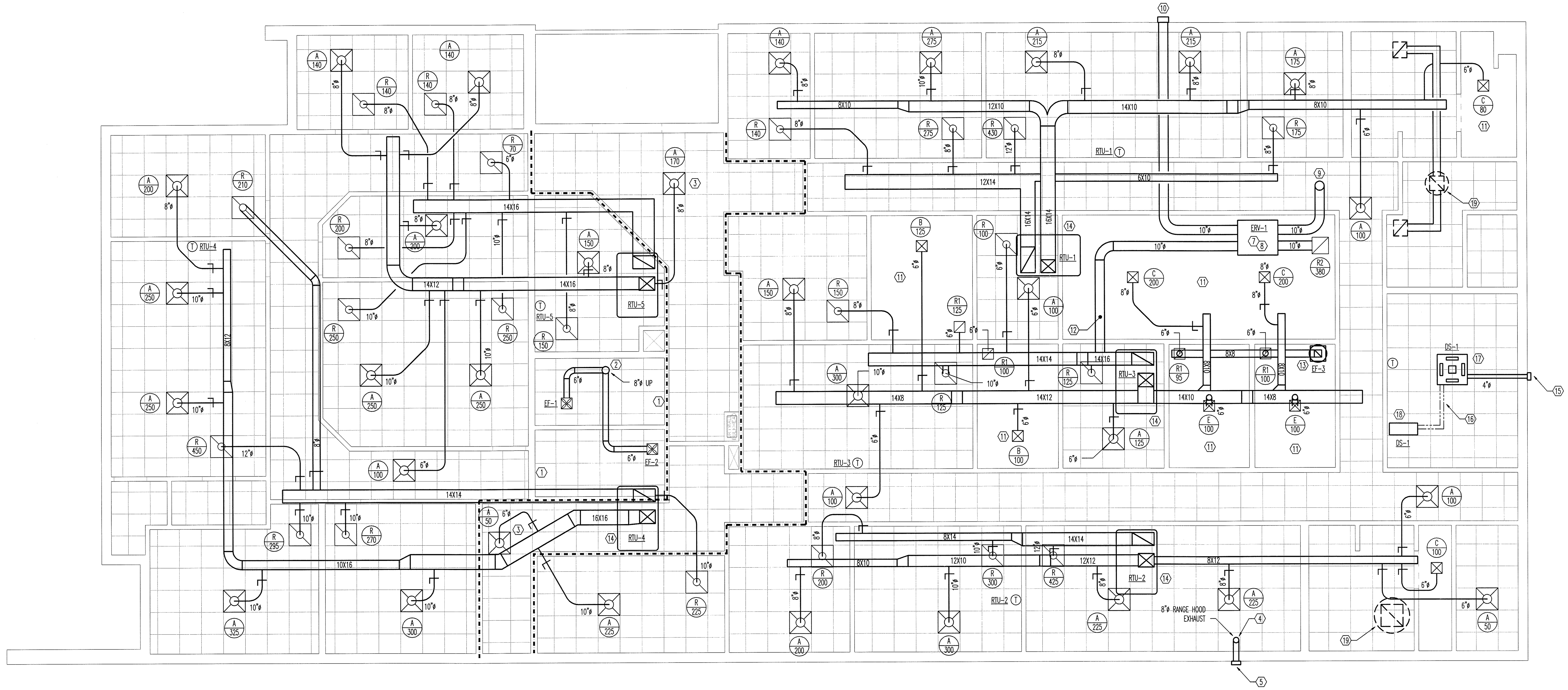
MECHANICAL DEMO PLAN

SHEET NO.
M2

PROJECT NO: 12-079



1 HR FIRE PARTITION

CORRIDOR HAS A 1 HR RATED CEILING.

MECHANICAL CONTRACTOR MUST COORDINATE WITH TOWN AND POLICE DEPARTMENT ON THE STAGING OF THE WORK AS REQUIRED TO MINIMIZE DISRUPTIONS TO NORMAL OPERATIONS.

HEX PLAN NOTES

1. UNDERCUT RESTROOM DOOR FOR EXHAUST MAKEUP AIR.
2. COMBINE TWO (2) 6"ø EXHAUST DUCTS INTO ONE (1) 8"ø AND EXTEND THRU ROOF. TERMINATE WITH GOOSNECK AND INSECT SCREEN OR APPROVED WEATHERTIGHT EXHAUST CAP. MAINTAIN 10' FROM FRESH AIR INTAKES.
3. PROVIDE CEILING RADIATION DAMPER.
4. PROVIDE ROUND TO SQUARE TRANSITION TO RANGE HOOD AS REQUIRED BY SPECIFIC APPLIANCE REQUIREMENTS.
5. TERMINATE RANGE HOOD EXHAUST WITH BRICK VENT AT EXTERIOR WALL AS HIGH AS POSSIBLE. PROVIDE COLOR CHOICES TO ARCHITECT FOR APPROVAL.
6. REPLACE EXISTING ROOFTOP UNIT WITH NEW HEAT PUMP. REUSE SAME ROOF OPENING. PROVIDE NEW CURB AND ADAPTOR.
7. INSTALL ERV ABOVE SHEET ROCK CEILING AND PROVIDE ACCESS DOOR IN CEILING AS REQUIRED FOR MAINTENANCE.
8. INTERLOCK ERV OPERATION WITH ROOFTOP UNIT FAN OPERATION.
9. 10"ø FRESH AIR TO ROOF. TERMINATE WITH GOOSENECK.
10. 10"ø EXHAUST DUCT TO WALL. TERMINATE WITH STORM LOUVER. MAINTAIN 10 FT FROM FRESH AIR INTAKES. VERIFY LOUVER COLOR WITH ARCHITECT.
11. FOR SURFACE MOUNT GRILLES AND DIFFUSERS, INCLUDE BALANCING DAMPER WITH OUTLET OR INLET.
12. DUCT FRESH AIR OUTLET FROM ERV TO RETURN DUCT OF ROOFTOP UNIT.
13. INTERLOCK OPERATION OF EF-3 WITH RTU-3 FAN OPERATION.
14. REUSE EXISTING ROOFTOP OPENING. PROVIDE NEW CURB AND ADAPTOR AS REQUIRED.
15. TERMINATE 4" FRESH AIR DUCT AT BRICK VENT AS HIGH IN WALL AS POSSIBLE. COORDINATE COLOR OF BRICK VENT WITH ARCHITECT.
16. ROUTE REFRIGERANT LINES OF INDOOR CASSETTE OF DUCTLESS SPLIT TO CONDENSING UNIT ON ROOF.
17. PUMP CONDENSATE FROM INDOOR CASSETTE TO EXTERIOR WALL AND TERMINATE AT FRENCH DRAIN, STORM SEWER, OR OTHER APPROVED LOCATION. COORDINATE CASSETTE LOCATION WITH EXISTING LIGHTS.
18. CONDENSING UNIT FOR DUCTLESS SPLIT TO BE MOUNTED ON ROOF. PROVIDE RAILS AND SUFFICIENT SUPPORTING APPARATUS.
19. EXISTING EXHAUST FAN TO REMAIN. MC TO PROVIDE AIRFLOW READING TO ENGINEER.

M3.0 MECHANICAL PLAN-SCALE: 1/4"

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17304 MICHAEL W. KILIAN
6/25/12
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

RENOVATIONS TO:
WAKE FOREST POLICE STATION
225 S. TAYLOR ST
WAKE FOREST, NC 27587

REVISIONS:

NO.	DATE	DESCRIPTION

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NO.	DATE	DESCRIPTION
A	2012-06-25	PERMIT SET

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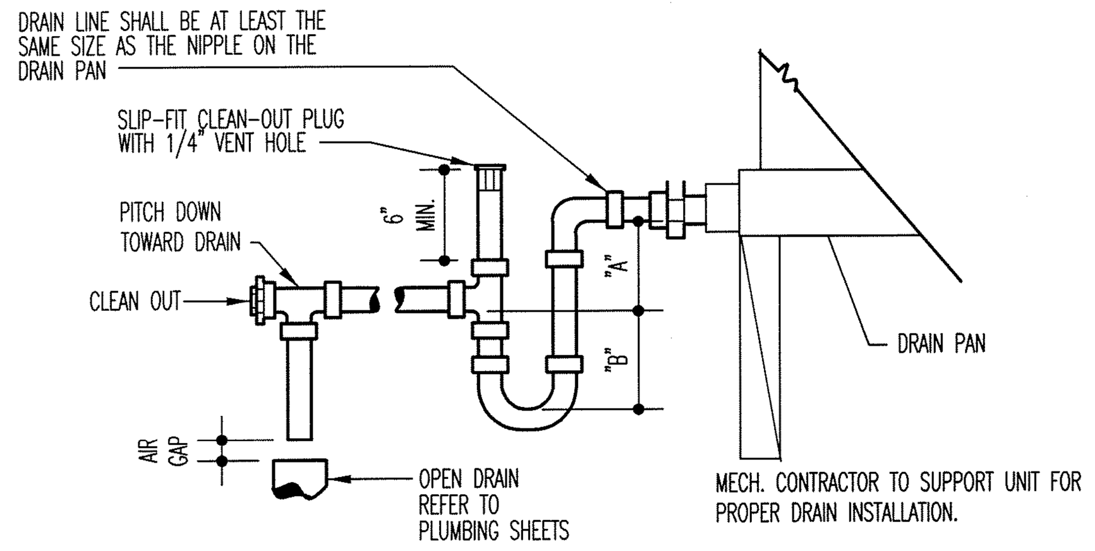
MECHANICAL PLAN

SHEET NO.
M3

PROJECT NO: 12-079

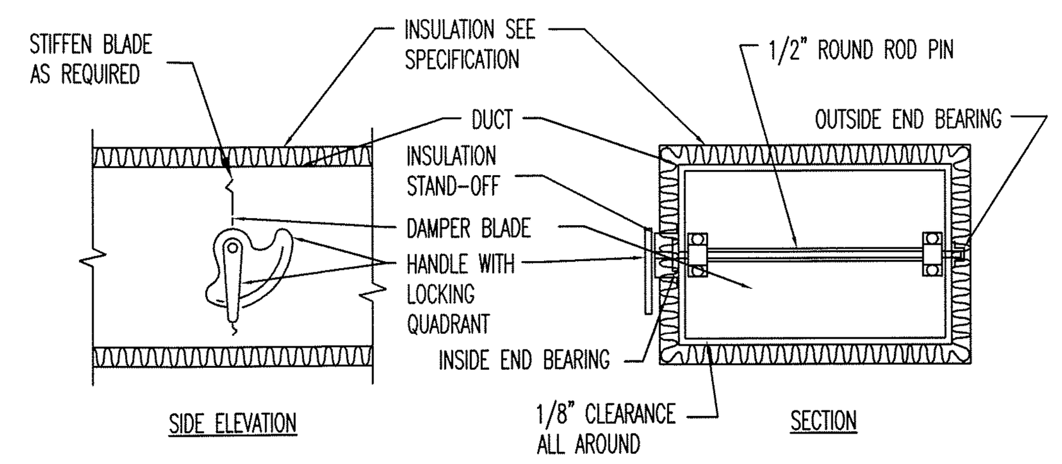


UNIT TYPE	A	B
DRAW THRU	2" PLUS X	XB
BLOW THRU	1" MIN.	2X

WHERE X = STATIC PRESSURE IN PAN

NOTE:

1. DRAIN LINE SHALL BE INSULATED WHERE MOISTURE FROM SWEATING WILL BE OBJECTIONABLE OR CAUSE DAMAGE TO AREA.
2. FOR ATTIC MOUNTED UNITS LOCATED ABOVE CEILINGS PROVIDE 3/4" SECONDARY DRAIN PIPING. ROUTE DRAIN TO POINT WHERE LEAKAGE WILL BE NOTICED.
3. MIN. AIR GAP SHALL BE EQUAL TO TWO (2) TIMES THE INTERNAL DIA. OF THE CONDENSATE DRAIN PIPING.

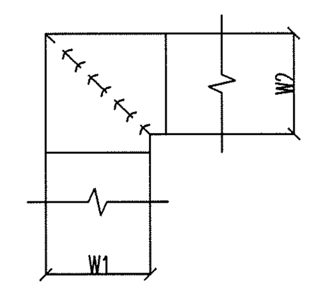


NOTE:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

VOLUME DAMPER DETAIL

NO SCALE

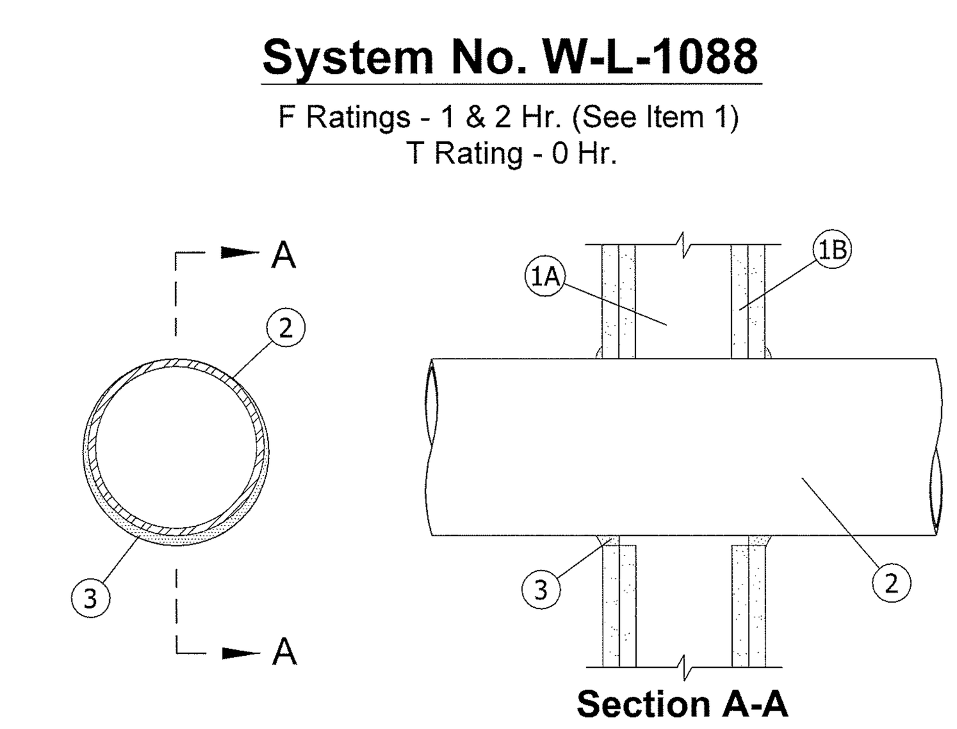


NOTES:

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" VANES SHALL BE DOUBLE VANE TYPE.

SQUARE VANE DETAIL

NO SCALE



1. **Wall Assembly -** The 1 or 2 hr. fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs -** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) O.C. with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min. 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) O.C.
   B. **Gypsum Board* -** 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 6-3/4 in. (171 mm).

   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Through Penetrant -** One metallic pipe, tubing or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between pipes, tubing or conduits and periphery of opening shall be min 0 in. (point contact) to max 5/8 in. (16 mm). Pipe, tubing or conduit to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, tubing or conduits may be used:
   A. **Steel Pipe -** Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 6 in. (152 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Copper Tubing -** Nom 6 in. (152 mm) diam (or smaller) Type M (or heavier) copper tubing.
   D. **Copper Pipe -** Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   E. **Conduit -** Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing, nom 4 in. (102 mm) diam (or smaller) galv steel conduit or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.
3. **Fill, Void or Cavity Material* - Sealant -** Min 5/8 in. (16 mm) thickness of fill material within annulus, flush with both surfaces of wall. Additional fill material installed such that a min 1/4 in. (6 mm) thick crown is formed around the penetrating item lapping 1/2 in. (13 mm) beyond the periphery of the opening.

   SPECIFIED TECHNOLOGIES INC - SpecSeal LC 150 Sealant, SpecSeal LE600 Sealant

*Bearing the UL Classification Mark

STI
Specified Technologies Inc. 200 Evans Way Somerville, NJ 08876
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Created or Revised: June 08, 2007
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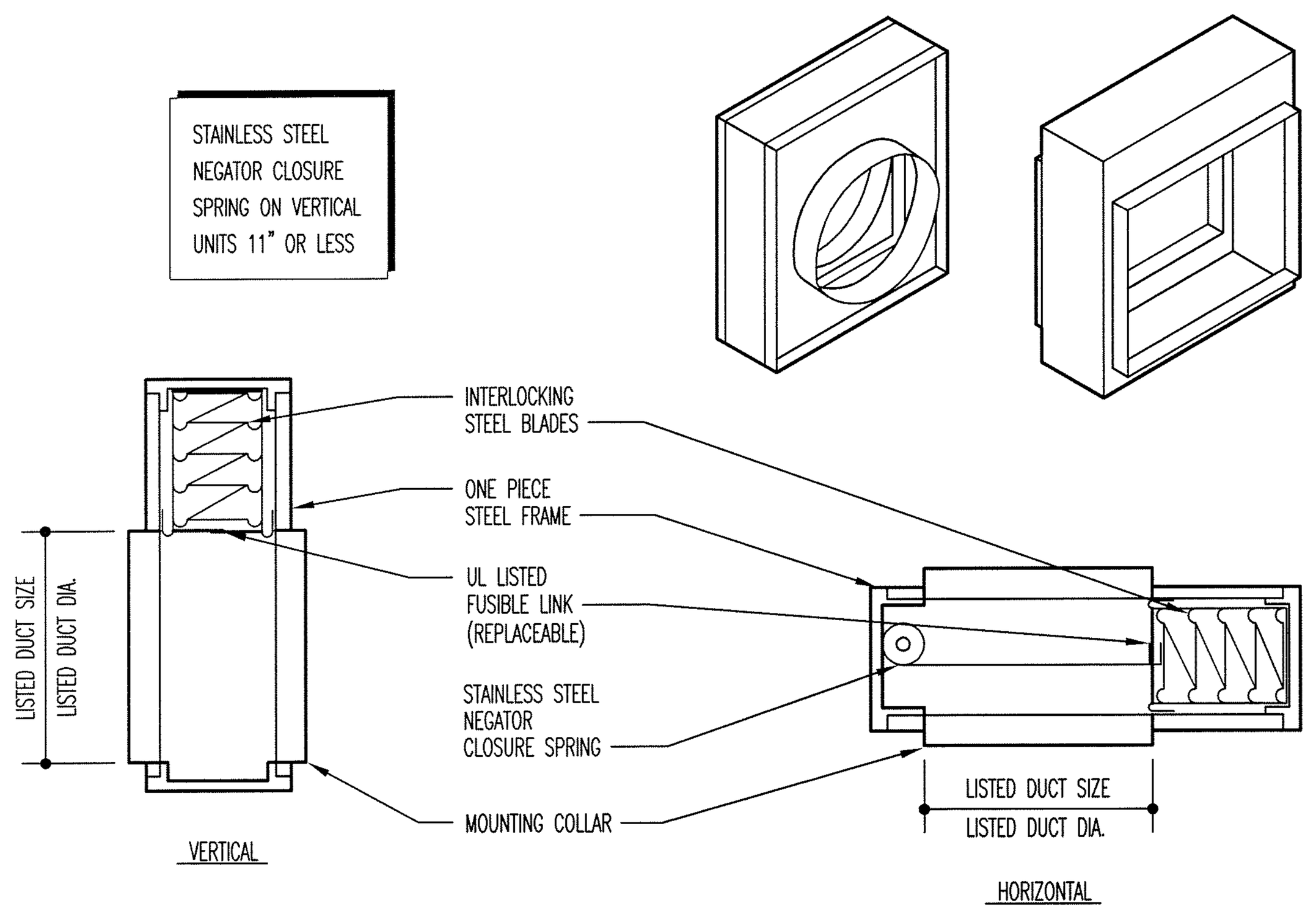
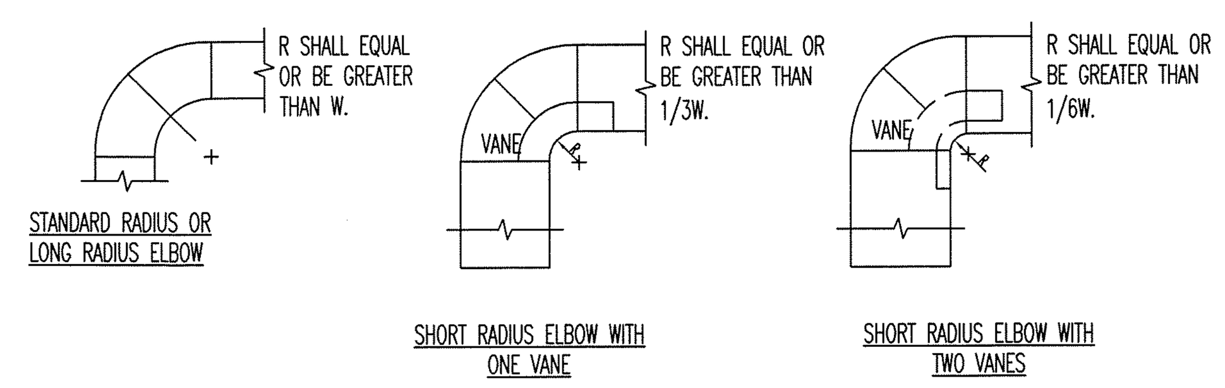
PAGE 1 OF 1



SIMILAR TO METAL INDUSTRIES, INC. 1 1/2 HR. FIRE RESISTANCE RATING, MODEL FD; OR EQUAL

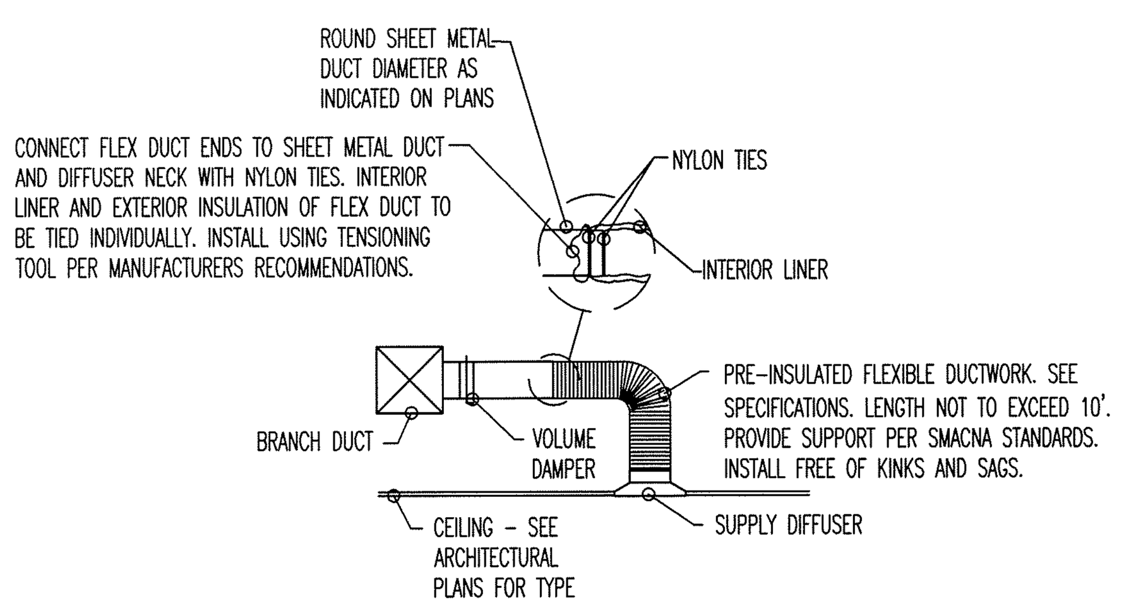


NOTES:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

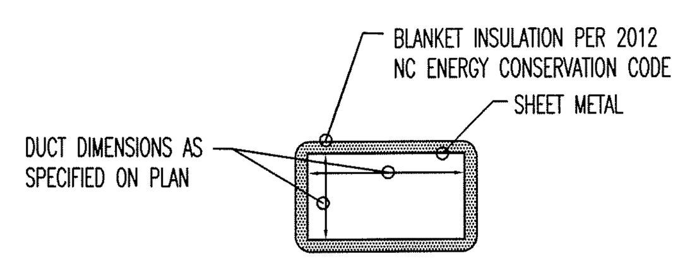
ELBOWS DETAIL

NO SCALE



FLEXIBLE DUCT TAKEOFF

SCALE



1. ALL DUCT DIMENSIONS SHOWN ON THE PLANS ARE INSIDE CLEAR.
2. PROVIDE A MINIMUM OF R-5 INSULATION WHEN DUCT IS LOCATED IN AN UNCONDITIONED SPACE.
3. PROVIDE A MINIMUM OF R-8 INSULATION WHEN DUCT IS LOCATED OUTSIDE THE BUILDING ENVELOPE.

DUCT FABRICATION DETAIL

NO SCALE

M4.0 MECHANICAL DETAILS-NO SCALE

HALE ARCHITECTURE
P. O. BOX 1437
Wake Forest, NC 27588-1437
Phone (919) 554-4000

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Michael W. Kilian, PE
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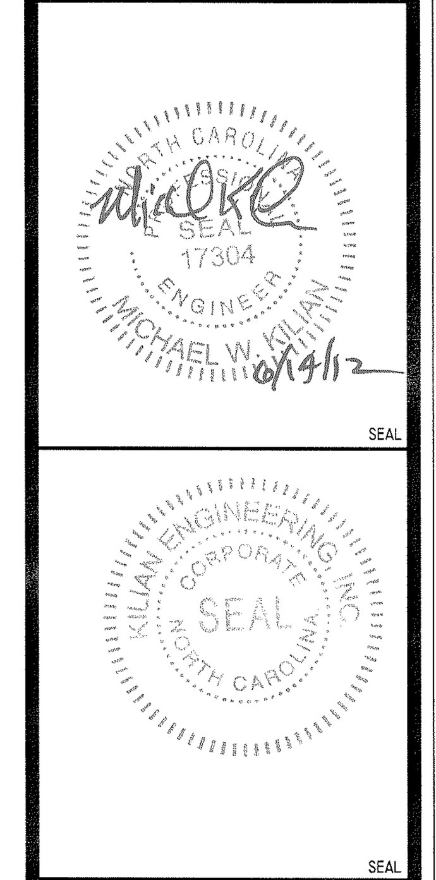
Electrical ▪ Fire Alarm



RENOVATIONS TO:
WAKE FOREST POLICE STATION
225 S. TAYLOR ST
WAKE FOREST, NC 27587

REVISIONS:

NO.	DATE	DESCRIPTION

ISSUED:

NO.	DATE	DESCRIPTION
A	2012-06-14	PERMIT SET

DRAWN BY:
CHECKED BY: MWK

MECHANICAL DETAILS

SHEET NO.

M4

PROJECT NO: 12-079

ELECTRICAL DESIGNER'S STATEMENT			
ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE PRESCRIPTIVE _X_ PERFORMANCE ___ ENERGY COST BUDGET ___			
LIGHTING SCHEDULE:			
LAMP TYPE REQUIRED IN FIXTURE:		SEE LIGHTING LEGEND	
NUMBER OF LAMPS PER FIXTURE:		SEE LIGHTING LEGEND	
BALLAST TYPE USED IN FIXTURE:		SEE LIGHTING LEGEND	
NUMBER OF BALLASTS IN FIXTURE:		SEE LIGHTING LEGEND	
TOTAL WATTAGE PER FIXTURE:		SEE LIGHTING LEGEND	
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:		WATTS SPECIFIED 4034	WATTS ALLOWED 4249
ALL EXTERIOR LUMINAIRES > 100W MUST HAVE A MINIMUM EFFICACY OF 60 LUMENS/WATT			
OCCUPANCY	AREA (sf)	ALLOWANCE (W/sf)	WATTAGE ALLOWED
POLICE STATION	3828	1.11	4249
TOTAL	3828		4249
EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS) MOTOR HORSEPOWER: N/A NUMBER OF PHASES: N/A MINIMUM EFFICIENCY: N/A MOTOR TYPE: N/A NUMBER OF POLES: N/A			
DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE NORTH CAROLINA STATE ENERGY CODE, 2012 EDITION.			

LIGHT FIXTURE SCHEDULE

MARK	MFG	DESCRIPTION	BALLAST	NO. BALLASTS	LAMP TYPE	NO. LAMPS	WATTAGE	VOLTAGE	DIFFUSER	MODEL #	OPTIONS
A	ENERGYLITE	2X2 LAY-IN LED PANEL	LED DRIVER	1	LED		35	120	LENS	70TROF-006-3E5K	4
B	ENERGYLITE	2X2 LAY-IN LED PANEL	LED DRIVER	1	LED		60	120	LENS	70TROF-005-1E5K	4
C	LITHONIA	6 INCH RECESSED CAN OPEN	ELECTRONIC	1	13W DTT CF	1	14	120	OPEN	LP6FN-13DTT-609AZ-MVOLT-BDP	3
D	LITHONIA	6 INCH RECESSED CAN WALL WASH	ELECTRONIC	1	13W DTT CF	1	14	120	WALL WASH	6VF-13DTT-6W9AZ-MVOLT-BDP	3
F	NOT USED										
G	KENALL	SURFACE MOUNT HIGH ABUSE FIXTURE	ELECTRONIC	1	26WQ CF	2	56	120	POLYCARB	MS11FD-PP-MW-26Q-2-DV	2,3
C-EM	SURE LITES	CEILING MOUNTED, SEMI-RECESSED EMERGENCY LIGHT	-	-	INCAND	2	6	120	-	RLM8-SD	1
EX	SURE LITES	LED EXIT SIGN W/ BATTERY BACKUP	-	-	LED	-	0.7	120	-	R-EU-S-70-R	1
EM	SURE LITES	DUAL HEAD EMERGENCY FIXTURE	-	-	INCAND	2	0.1	120	-	CU2 SERIES	1

1. FIXTURES LABELED FOR EMERGENCY USE SHALL HAVE BATTERY FOR 90 MINUTE ILLUMINATION OF TWO (2) LAMPS
2. WET LOCATION LISTED
3. ANY LIGHTING SUBSTITUTIONS MUSTED BE APPROVED BY ARCHITECT AND OWNER
4. COORDINATE WITH TOWN OF WAKE FOREST ON FIXTURES

POWER DEVICE LEGEND

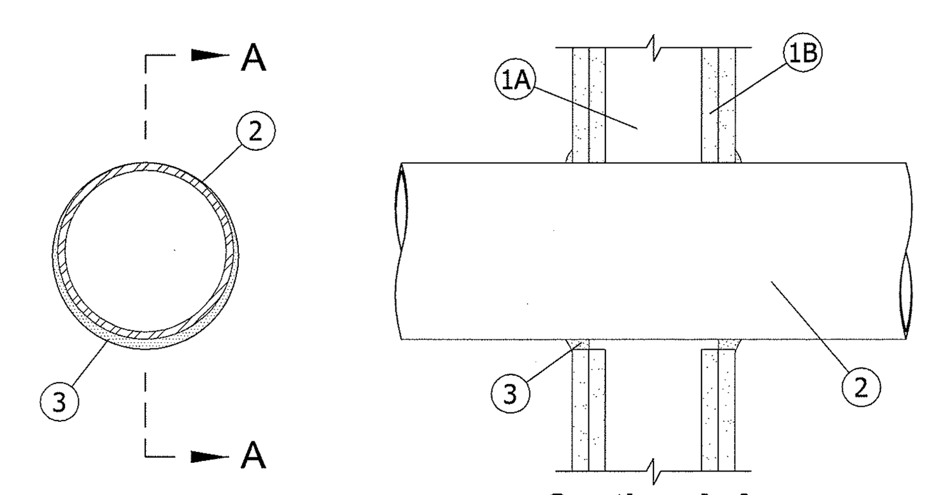
SYMBOL	DESCRIPTION	REMARKS
	DATA AND TELEPHONE JACK	TELEPHONE OUTLET-1 DUAL RJ45 OUTLET FOR VOICE AND DATA. EC TO INSTALL 3/4"C FROM OUTLET BOX TO ABOVE CEILING FOR FUTURE USE. COMMUNICATION CABLING BY OTHERS.
	DUPLEX RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1. GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER. 'CH' DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED.
	QUAD RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE
	DUPLEX FLOOR RECEPTACLE	DUPLEX RECEPTACLE OF SAME CHARACTERISTICS AS ABOVE WITH BRASS COVER. MOUNT IN FLOOR. ALL FLOOR BOXES MUST BE LISTED FOR FLOOR APPLICATION.
	FUSIBLE DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS, FUSE ACCORDING TO NAMEPLATE DATA.
	DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS
(J)	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC
(C)	CABLE TV OUTLET	PROVIDE EMPTY OUTLET BOX FOR CATV CABLING BY OTHERS.

LIGHTING DEVICE LEGEND

SYMBOL	DESCRIPTION	REMARKS
$	SINGLE POLE WALL SWITCH	HEAVY DUTY, AC ONLY, COMMERCIAL GRADE GENERAL USE SNAP SWITCH COMPLYING WITH NEMA WD 6 AND WD 1. IVORY PLASTIC BODY WITH TOGGLE HANDLE. 120-277V, 20A
$D	DIMMER SWITCH	COMMERCIAL GRADE, 120V, 1500W
$M	WALL MOUNTED OCCUPANCY SENSOR	WATTSTOPPER PW-100 LINE VOLTAGE OCCUPANCY SENSOR. INFRARED.
$LV	LOW VOLTAGE SWITCH	WATTSOPPER LVS-1 LOW VOLTAGE MOMENTARY CONTROL SWITCH
$3	3 WAY SWITCH	3-WAY TYPE SWITCH WITH SAME CHARACTERISTICS AS SINGLE POLE SWITCH ABOVE
$$	2-SINGLE POLE SWITCHES	INDICATES BI-LEVEL SWITCHING. INNER LAMPS SWITCHED INDEPENDENTLY OF OUTER LAMPS
(DT)	CEILING OCCUPANCY SENSOR	WATTSTOPPER, DT-300 LOW VOLTAGE OCCUPANCY SENSOR. 360° ULTRA SONIC AND INFRARED.
(P)	POWER PACK	WATTSTOPPER, BZ-150 LOW VOLTAGE POWER PACK FOR CEILING PACK SENSORS.
(J)	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC
⊠	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.
(SP)	SWITCHING PHOTOSENSOR	WATTSTOPPER, LS-102, CONSULT OWNER FOR FOOT-CANDLE SET POINT

System No. W-L-1088

F Ratings - 1 & 2 Hr. (See Item 1)
T Rating - 0 Hr.



Section A-A

1. **Wall Assembly -** The 1 or 2 hr. fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs -** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) O.C. with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min. 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) O.C.
   B. **Gypsum Board* -** 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 6-3/4 in. (171 mm).
   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Through Penetrant -** One metallic pipe, tubing or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between pipes, tubing or conduits and periphery of opening shall be min 0 in. (point contact) to max 5/8 in. (16 mm). Pipe, tubing or conduit to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, tubing or conduits may be used:
   A. **Steel Pipe -** Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 6 in. (152 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Copper Tubing -** Nom 6 in. (152 mm) diam (or smaller) Type M (or heavier) copper tubing.
   D. **Copper Pipe -** Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   E. **Conduit -** Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing, nom 4 in. (102 mm) diam (or smaller) galv steel conduit or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.
3. **Fill, Void or Cavity Material* - Sealant -** Min 5/8 in. (16 mm) thickness of fill material within annulus, flush with both surfaces of wall. Additional fill material installed such that a min 1/4 in. (6 mm) thick crown is formed around the penetrating item lapping 1/2 in. (13 mm) beyond the periphery of the opening.
   SPECIFIED TECHNOLOGIES INC - SpecSeal LC 150 Sealant, SpecSeal LE600 Sealant

*Bearing the UL Classification Mark

STI

Specified Technologies Inc. 200 Evans Way Somerville, NJ 08876
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Created or Revised: June 08, 2007
(800)992-1180 • (908)526-8000 • FAX (908)231-8415 • E-Mail:techserv@stifirestop.com • Website:www.stifirestop.com

UL
W-L-1088
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GENERAL ELECTRICAL NOTES:

1. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE ELECTRICAL CONTRACTOR (EC) SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
2. EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE EC.
3. WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE EC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE EC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5. THE EC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
6. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
7. TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
8. THE EC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE EC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE EC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
9. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC, UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS TO AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
10. EC SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. EC SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. PRIOR TO ORDERING EQUIPMENT, THE EC SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED. PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER-HAMMER, SIEMENS, OR GE. BUSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BASES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL LISTED FOR SUCH USE. EC SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH PROPER CLEARANCES PER NEC 110.26.
11. ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSSMAN, LITTELFUSE, OR MERSEN.
12. CIRCUIT BREAKERS SHALL BE MOLDED-CASE, THERMAL MAGNETIC TYPE WITH QUICK-MAKE, QUICK-BREAK MECHANISM, COMMON TRIP ON MULTI-POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.
13. WHERE CIRCUIT BREAKERS OR FUSES ARE APPLIED IN COMPLIANCE WITH THE SERIES COMBINATION RATINGS MARKED ON THE EQUIPMENT BY THE MANUFACTURER, THE EQUIPMENT ENCLOSURE(S) SHALL BE LEGIBLY MARKED IN THE FIELD TO INDICATE THE EQUIPMENT HAS BEEN APPLIED WITH A SERIES COMBINATION RATING.
14. EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN HIS CONTRACT. ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4 INCH CONDUIT. EACH MULTIWIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTIWIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
15. ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE EC. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
16. THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THHN/THWN OR XHHW; ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THWN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75'C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75'C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC, INDUSTRIAL WIRE & CABLE, INC, OR SOUTHWIRE COMPANY.
17. JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR T&B "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS. WHERE CONCENTRIC, ECCENTRIC, OR OVERSIZED KNOCKOUTS ARE ENCOUNTERED, A GROUNDING TYPE INSULATED BUSHING SHALL BE PROVIDED.
18. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE-PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. ISOLATED GROUND WIRES SHALL BE GREEN WITH YELLOW BANDS OR STRIPES. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLENUMS.
19. ALL LUMINAIRES SHALL BE LISTED. LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
20. ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
21. MOUNT LIGHT SWITCHES AT 48 INCHES AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OWNER. INSTALL SWITCHES WITH off POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, IVORY PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/DIVIDERS FOR MULTI-GANG BOXES FOR COMPLIANCE WITH NEC 404.8(B).
22. EC SHALL PROVIDE FIRE-STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE-RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
23. EC SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AT WATER COOLERS, AND AS REQUIRED BY NEC. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1.
24. LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
25. GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, PROPERLY SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
26. ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE EC. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APPLETON, RACO, OR O-Z/GEDNEY. COUPLINGS SHALL BE THREADED, SET-SCREW, OR COMPRESSION TYPE. INDENTER OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PERMITTED
27. CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. DO NOT USE TYPE MC CABLE OR TYPE AC CABLE ALL THE WAY BACK TO THE PANEL. FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY-IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE, UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE 6-8 INCHES BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC, SHALL RISE AT LEAST 2 INCHES ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH 300.5(G), 300.7(A), AND 300.50(E) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS. COMPLETELY AND THOROUGHLY SWAB ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER.
28. EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C80.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT ANSI C80.6 AND UL 1242.
29. METAL CONDUIT SHALL BE BY ALLIED TUBING & CONDUIT, BECK MANUFACTURING, INC, OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID-TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AFC CABLE SYSTEMS, INC, ELECTRI-FLEX COMPANY, OR INTERNATIONAL METAL HOSE.
30. THE EC SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APPLETON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE FS. VAPORTITE BOXES SHALL BE TYPE GS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE EC. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH NC BUILDING CODE 712.3.2 (MAXIMUM BOX SIZE IS 16 SQUARE INCHES AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK. SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED 4X4 OCTAGONAL OR SQUARE BOXES.
31. ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS-OR EMBEDDED IN CONCRETE OR MASONRY. ELECTRICAL SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATALOG ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 INCH EMT CONDUIT MAXIMUM AND 4 INCH JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1613 OF THE NORTH CAROLINA GENERAL CONSTRUCTION BUILDING CODE.
32. ABANDONED CONDUIT AND BOXES SHALL HAVE ALL ELECTRICAL WIRING REMOVED COMPLETELY AND NOT JUST "MADE SAFE." CONDUIT AND BOXES SHALL BE REMOVED WHERE PRACTICAL WITHOUT CREATING ADDITIONAL DEMOLITION/RESTITUTION WORK FOR OTHER TRADES.
33. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.4.
34. ISOLATED-GROUND TYPE RECEPTACLES SHALL BE INSTALLED IN ACCORDANCE WITH 250.146(D). ISOLATED GROUND RECEPTACLES SHALL BE ORANGE IN COLOR.
35. INSTALL ONE (1) 3/4 INCH FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.
36. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH-INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE A 4 INCH SQUARE BY 1-1/2 INCH DEEP BOX WITH 3/4 INCH KNOCK-OUTS AND A 3/4 INCH CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON-METALLIC INSULATING BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES.
37. ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
38. CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE EC SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
39. EC SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.32 AND 430 PART IX. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC, IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO PROPERLY SUPPORT THE DEVICE.
40. EC SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC. TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARCH FLASH HAZARDS PER 110.16 OF NEC.
41. EC SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE, WHITE ENGRAVED LETTERS (1/4 INCH MINIMUM) ETCHED INTO THE WHITE CORE. EC SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL.
42. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BULBS, AND TRANSFORMERS, WIRING AND ELECTRICAL EQUIPMENT, AND INSULATION. WASTE MATERIALS CONTAINING LEAD, ASBESTOS, PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HARMFUL SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
43. ALL WORK SHALL CONFORM TO 2008 NATIONAL ELECTRIC CODE, 2012 STATE BUILDING CODE, AND ALL APPLICABLE LOCAL CODES.

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SEAL

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225 S. TAYLOR ST
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NO.	DATE	DESCRIPTION

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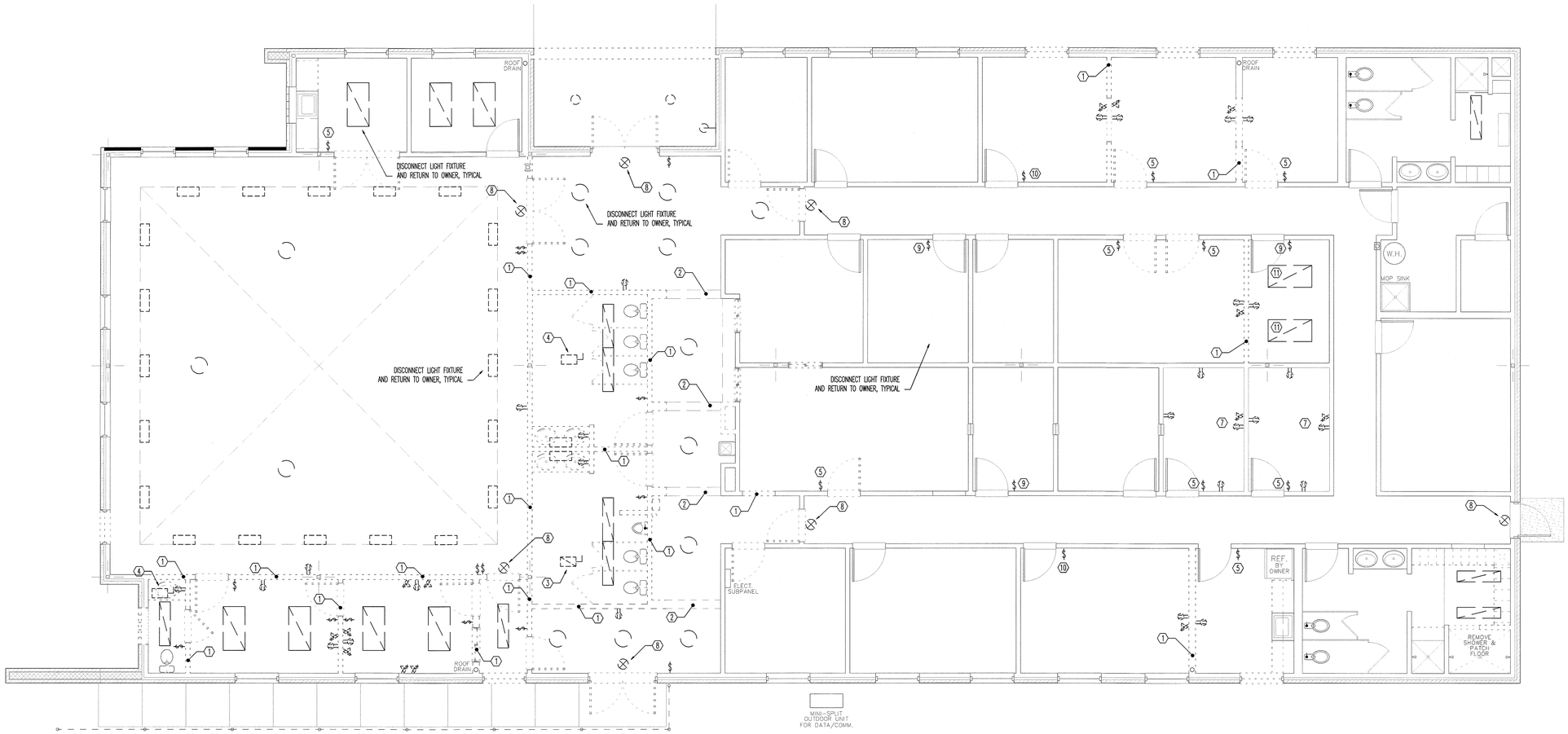
CHECKED BY: MWK

ELECTRICAL SCHEDULES
GENERAL NOTES

SHEET NO.
E1

PROJECT NO: 12-079



HEX PLAN NOTES

1. DISCONNECT AND SAFELY DEMO ANY EXISTING ELECTRICAL IN WALL (OR SECTION OF WALL) TO BE REMOVED.
2. DISCONNECT AND SAFELY DEMO ANY EXISTING ELECTRICAL IN BULK HEAD.
3. DISCONNECT EXISTING HVAC UNIT FROM POWER SOURCE AND DEMO SWITCH AND CIRCUIT CONDUCTORS BACK TO MDP. LABEL BREAKER IN MDP AS SPARE.
4. DISCONNECT EXISTING EXHAUST FAN FROM SOURCE AND DEMO SWITCH AND CIRCUIT CONDUCTORS BACK TO SOURCE PANEL.
5. DISCONNECT AND DEMO SWITCH.
6. DISCONNECT AND DEMO EXISTING FIXTURE.
7. DISCONNECT EXISTING RECEPTACLES IN THIS ROOM FROM EXISTING CIRCUITS AND REMOVE EMPTY BOXES. REMOVE EXISTING DATA/PHONE OUTLETS AND BOXES ALSO.
8. EXISTING EXIT SIGN TO BE REPLACED.
9. EXISTING SWITCH TO BE REPLACED WITH OCCUPANCY SENSOR. REUSE WALL BOX IF POSSIBLE.
10. EXISTING SWITCH TO BE REPLACED WITH LOW-VOLTAGE OVERRIDE SWITCH. REUSE WALL BOX IF POSSIBLE.
11. EXISTING 2X4 FIXTURE IN SUSPENDING CEILING. FIXTURE TO BE REUSED AND MOUNTED FLUSH IN NEW DRYWALL CEILING.

E2.0 ELECTRICAL DEMOLITION PLAN-SCALE: 3/16"

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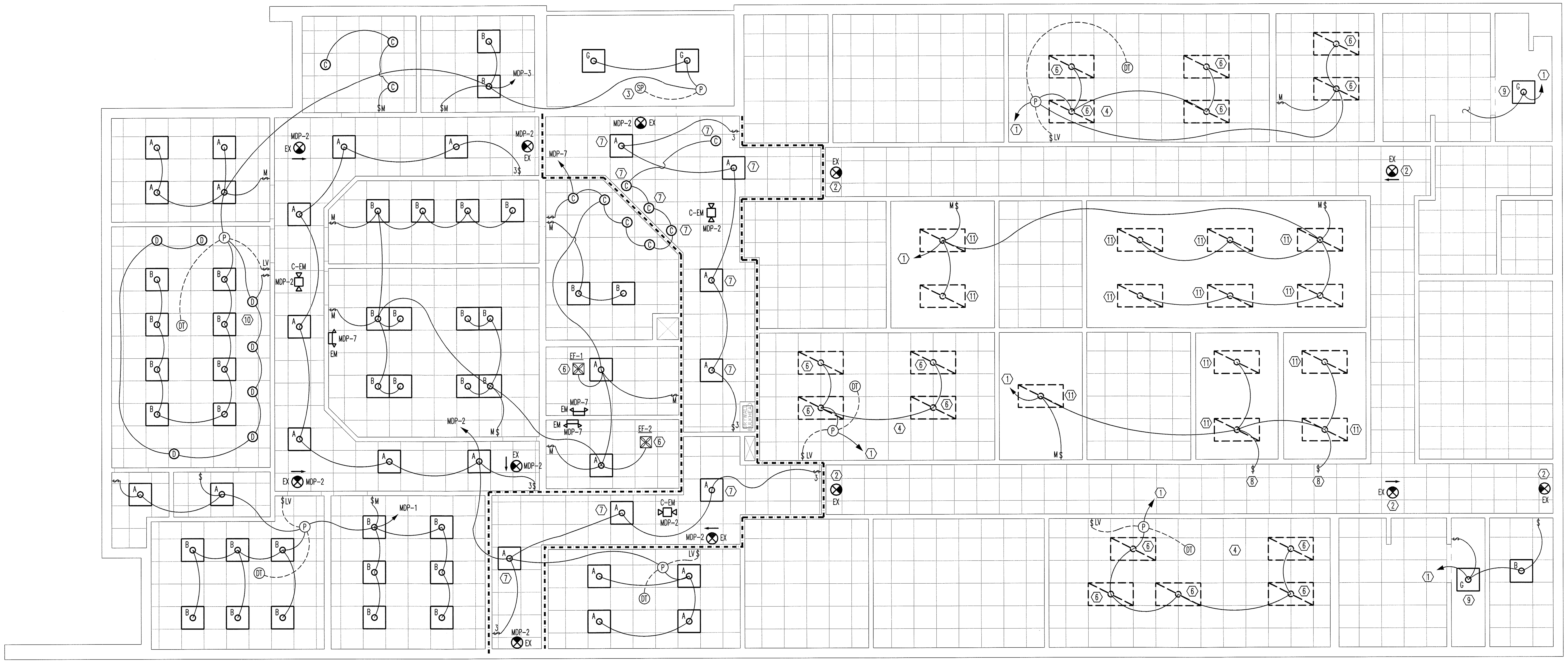
ELECTRICAL DEMOLITION PLAN

SHEET NO.
E2

PROJECT NO: 12-079



1 HR FIRE PARTITION

CORRIDOR HAS A 1 HR RATED CEILING.

HEX PLAN NOTES

1. RECONNECT TO EXISTING LIGHTING CIRCUIT.
2. CONNECT EXIT SIGN TO EXISTING LIGHTING CIRCUIT ON UNSWITCHED POWER (AHEAD OF ALL SWITCHED, SENSORS, CONTACTORS, ETC). EXIT SIGNS ARE NEW AND TO REPLACE EXISTING UNITS.
3. VERIFY FOOT-CANDLE SETTING OF DAYLIGHT SENSOR WITH OWNER.
4. RECONNECT EXISTING LIGHTS THRU OCCUPANCY SENSOR CONTROLLED POWER PACK.
5. CONNECT EXHAUST FAN ON LIGHTING CIRCUIT CONTROLLED BY OCCUPANCY SENSOR.
6. EXISTING LIGHT TO REMAIN. RESWITCH THRU OCCUPANCY SENSOR.
7. PROVIDE TENTING OF LIGHT FIXTURES IN CORRIDOR AS REQUIRED TO MAINTAIN FIRE RESISTANCE RATING OF CORRIDOR CEILING ASSEMBLY.
8. LIGHT SWITCH FOR HOLDING CELL OUTSIDE ROOM.
9. NEW SURFACE MOUNTED FIXTURE REPLACES EXISTING.
10. NOTE: CAN LIGHTS ARE ON SEPARATE SWITCH AND NOT WIRED THROUGH OCCUPANCY SENSOR POWER PACK.
11. EXISTING LIGHT TO BE RE-USED. SWITCH ON OCCUPANCY SENSOR AS SHOWN.

NOTES FOR EMERGENCY FIXTURES

1. FOR INTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE FIXTURE BALLAST AHEAD OF ALL SWITCHES, SENSORS, ETC.
2. FOR EXTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE NORMAL EXTERIOR LIGHTS AHEAD OF ALL CONTACTORS, PHOTOCELLS, ETC.
3. IN BOTH CASES, EMERGENCY POWER SHOULD INITIATE ONLY IN THE EVENT OF THE LOSS OF NORMAL POWER. ALL BATTERIES SHALL BE RATED TO POWER TWO (2) LAMPS FOR 90 MINUTES MINIMUM.

OCCUPANCY SENSORS SEQUENCE OF OPERATIONS WITH LINE-VOLTAGE SWITCH

1. LINE VOLTAGE SWITCH MUST BE TURNED ON OR IN ON POSITION.
2. OCCUPANCY SENSOR DETECTS MOTION AND TURNS THE LIGHTS ON. SENSOR HOLDS LIGHTS ON AS LONG AS MOTION IS DETECTED. IF AFTER THE SET TIME DELAY, NO MOTION IS DETECTED, LIGHTS TURN OFF. CONSULT OWNER FOR DESIRED TIME DELAY SETTING.
3. THE LOAD CAN BE TURNED OFF USING THE MANUAL LINE VOLTAGE SWITCH AND IT STAYS OFF UNTIL THE SWITCH IS TURNED TO ON POSITION AND THE OCCUPANCY SENSOR DETECTS OCCUPANCY.

OCCUPANCY SENSORS SEQUENCE OF OPERATION WITH LOW-VOLTAGE MOMENTARY SWITCH

1. OCCUPANCY SENSOR DETECTS MOTION AND TURNS THE LIGHTS ON. SENSOR HOLDS LIGHTS ON AS LONG AS MOTION IS DETECTED. IF AFTER THE SET TIME DELAY, NO MOTION IS DETECTED, LIGHTS TURN OFF. CONSULT OWNER FOR DESIRED TIME DELAY SETTING.
2. THE LOAD CAN BE TURNED ON USING THE MANUAL SWITCH AND IT STAYS ON ACCORDING TO THE OCCUPANCY LOGIC SETTING. THE TIME DELAY OPERATES AS PROGRAMMED. WHEN THE LOAD TURNS OFF DUE TO LACK OF OCCUPANCY DETECTION, IT CAN BE TURNED ON AGAIN BY OCCUPANCY DETECTION OR THE SWITCH.
3. ACTIVATING THE MANUAL SWITCH WHILE THE LOAD IS ON TURNS THE LOAD OFF.
   - 3.1. WHEN THE LOAD IS TURNED OFF MANUALLY, AS LONG AS THE SENSOR CONTINUES TO DETECT OCCUPANCY THE LOAD STAYS OFF. FIVE MINUTES AFTER THE LAST OCCUPANCY DETECTION, THE LIGHTS STAY OFF AND THE SENSOR REVERTS TO THE AUTOMATIC-ON MODE.
   - 3.2. WHEN THE LOAD IS TURNED OFF MANUALLY, PRESSING THE SWITCH AGAIN TURNS THE LOAD ON AND THE SENSOR REVERTS TO THE AUTOMATIC-ON MODE.
   - 3.3. ONCE RETURNING TO AUTOMATIC-ON MODE, EITHER THE SWITCH OR OCCUPANCY DETECTION CAN TURN THE LOAD ON.

E3.0 LIGHTING PLAN-SCALE: 3/16"

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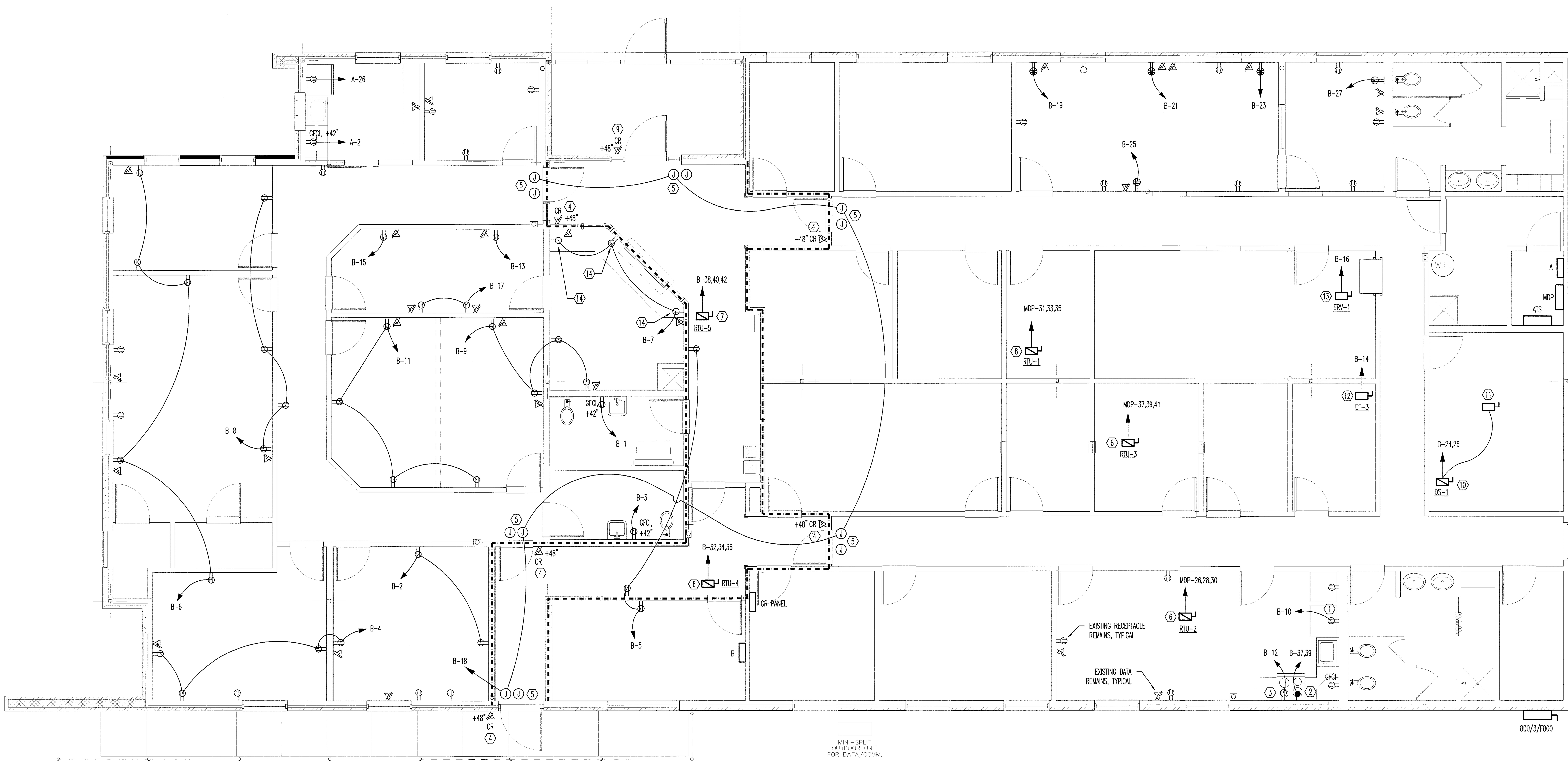
LIGHTING PLAN

SHEET NO.
E3

PROJECT NO: 12-079



(7) EXISTING GENERATOR 125 kVA

FUEL TANK (7)

1 HR FIRE PARTITION

CORRIDOR HAS A 1 HR RATED CEILING.

EC IS RESPONSIBLE FOR COORDINATING WITH TOWN'S SECURITY ACCESS VENDOR REGARDING BOXES, CONDUIT, STUBS, POWER, AND OTHER REQUIREMENTS NECESSARY TO FACILITATE INSTALLATION OF DOOR CARD READERS AND HARDWARE.

HEX PLAN NOTES

1. ADD RECEPTACLE FOR NEW REFRIGERATOR.
2. ADD 14-50R RECEPTACLE FOR NEW RANGE.
3. ADD RECEPTACLE ABOVE RANGE (CONFIRM ROUGH-IN HEIGHT) FOR NEW MICROWAVE/OVEN HOOD COMBO.
4. EMPTY FLUSH MOUNTED BOX FOR CARD READER. RUN CONDUIT BACK TO BOX FOR DOOR CONTROL MODULE. COORDINATE WITH TOWN'S SECURITY ACCESS VENDOR ON ALL REQUIREMENTS.
5. TWO JUNCTION BOXES ABOVE CEILING ADJACENT TO DOOR FOR POWER SUPPLY AND DOOR CONTROL MODULE RESPECTIVELY. COORDINATE WITH TOWN'S SECURITY ACCESS VENDOR ON ALL REQUIREMENTS.
6. EXISTING DISCONNECT SWITCH MAY BE REUSED IF AMPACITY RATING IS ADEQUATE. REPLACES FUSES PER NAMEPLATE DATA OF NEW UNIT.
7. NEW FUSIBLE DISCONNECT ON ROOF FOR RTU-5. FUSE IN ACCODANCE WITH NAMEPLATE DATA.
8. LOCATION OF EXISTING GENERATOR AND FUEL TANK SHOWN IS APPROXIMATE.
9. MOUNTING OF CARD READER BOX ON STOREFRONT ASSEMBLY BY OTHERS.
10. NEW FUSIBLE DISCONNECT SWITCH ON ROOF FOR DUCLESS SPLIT.
11. DISCONNECT SWITCH ABOVE CEILING FOR INDOOR CASSETTE UNIT. POWERED FROM OUTDOOR UNIT.
12. DISCONNECT FOR ROOF MOUNTED EXHAUST FAN. COORDINATE WITH MECHANICAL CONTRACTOR TO INTERLOCK FAN OPERATION WITH RTU-3. PROVIDE RELAY AS NECESSARY.
13. DISCONNECT SWITCH ABOVE CEILING FOR ERV-1.
14. COORDINATE MOUNTING HEIGHT WITH ARCHITECT/OWNER.

E4.0 POWER PLAN-SCALE: 3/16"

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17304 MICHAEL W. KILIAN
7/9/12
SEAL

KILIAN ENGINEERING CORPORATE SEAL NORTH CAROLINA
SEAL

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POWER PLAN

SHEET NO.
E4

PROJECT NO: 12-079

MDP											
			LOAD (kVA)			LOAD (kVA)					
CKT #	LOAD	BKR	A	B	C	C	B	A	BKR	LOAD	CKT #
[1]	LIGHTS	20/1	0.79	--	--	--	--	0.66	20/1	LIGHTS	[2]
[3]	LIGHTS	20/1	--	1.01	--	--		--	20/1	EWC ROOM 109	4
5	OUTDOOR LTS	20/1	--	--			--	--	20/1	EF-1,2	6
[7]	LIGHTS	20/1	0.49	--	--	--	--		20/1	???	8
[9]	SPARE	20/1	--	0.00	--	--		--	20/1	FACP	10
[11]	SPARE	20/1	--	--	0.00		--	--	20/1	GEN BAT CHRGR	12
13	EWH ROOM 125	20/1		--	--	--	--		20/1	N OUTSIDE BLUE	14
15	PA SEC 116	20/1	--		--	--		--	20/1	S OUTSIDE RED	16
17	EF-3, 131,132	20/1	--	--			--	--	20/1	UNKNOWN	18
19	GEN JACKET HT	20/1		--	--	--	--			SPACE	20
21	EMS	20/2	--		--	--		--	30/2	EWH 107	22
23	GEN ATS		--	--			--	--			24
25	SPACE			--	--	--	--	6.61	60/3	HP-2	[26]
27	UNKNOWN	30/2	--		--	--	6.61	--			[28]
29			--	--		6.61	--	--			[30]
[31]	HP-1	60/3	6.61	--	--	--	--	0.00	150/3	SPARE	32
[33]			--	6.61	--	--	0.00	--			34
[35]			--	--	6.61	0.00	--	--			36
[37]	HP-3	60/3	7.06	--	--	--	--	5.00	125/3	COMM ROOM PANEL	38
[39]			--	7.06	--	--	4.00	--			40
[41]			--	--	7.06	4.00	--	--			42
43	PANEL A	175/3	8.54	--	--	--	--	21.90	200/3	PANEL B	[44]
45			--	7.59	--	--	22.05	--			[46]
47			--	--	10.08	19.31	--	--			[48]
SUBTOTALS (kVA)			23.49	22.27	23.75	29.92	32.66	34.17	SUBTOTALS (kVA)		
CONNECTED (kVA)			57.66	54.93	53.67						
CONNECTED (AMPS)			481	458	447						
VOLTAGE/PHASE				208Y/120V, 3P, 4W							
MAINS RATING				800A							
MAIN BREAKER CIRCUIT RATING				800A							
AIC RATING				EXISTING							
SERVICE ENTRANCE RATED				NO							
ENCLOSURE				TYPE 1							
MOUNTING TYPE				SURFACE							

[ ] NEW CIRCUIT, OR CIRCUIT IMPACTED BY WORK

PANEL A											
			LOAD (kVA)			LOAD (kVA)					
CKT #	LOAD	BKR	A	B	C	C	B	A	BKR	LOAD	CKT #
1	REC. 101, 102	20/1	1.08	--	--	--	--	0.18	20/1	REC. 134	[2]
3	REC. 102, 103	20/1	--	1.08	--	--	0.90	--	20/1	REC. 117,118	4
5	REC. 104, 105	20/1	--	--	1.08	1.08	--	--	20/1	REC. 119,120	6
[7]	REC. 131-2,136,140	20/1	0.00	--	--	--	--	0.54	20/1	REC. 106,108	8
9	EWC 100	20/1	--	0.46	--	--	0.18	--	20/1	IG REC. 127	10
11	REC. ROOFTOP	20/1	--	--	0.18	0.18	--	--	20/1	IG REC. 116	12
[13]	REC. 129	20/1	0.00	--	--	--	--	0.72	20/1	REC. 114	14
[15]	REC. 130,133,138	20/1	--	0.36	--	--	0.72	--	20/1	REC. 113	16
[17]	REC. 130,135	20/1	--	--	0.72	0.90	--	--	20/1	REC. 111,112	18
19	REC. 126,127	20/1	1.08	--	--	--	--	0.50	20/1	COMPUTER ROOM	20
21	REC. 124, 128	20/1	--	0.90	--	--	0.18	--	20/1	REC. 125	22
23	REC. 110,111	20/1	--	--	0.54	0.18	--	--	20/1	REC. 125	24
25		20/1	0.00	--	--	--	--	1.00	20/1	REF	[26]
[27]	REC. 121,122	20/1	--	0.00	--	--	0.18	--	20/1	IG REC. 104	28
29	REC. 109,137	20/1	--	--	0.72	1.00	--	--	20/1	REF. 111	30
31	REC. EXTERIOR	20/1	0.54	--	--	--	--	1.00	20/1	LTS 116-21	32
33	SERVER ROOM AC	15/2	--	1.20	--	--	1.00	--	20/1	LTS 102-6	34
35			--	--	1.20	0.50	--	--	20/1	LTS ELEC RM, JAN	36
37	HALL LTS	20/1	1.00	--	--	--	--	0.90	20/1	REC. 130,134,135	[38]
39	IG REC. 117	20/1	--	0.18	--	--	0.25	--	20/1	PUMP	40
41	QUADS	20/1	--	--	0.72	1.08	--	--	20/1	REC. 122,123	42
SUBTOTALS (kVA)			3.70	4.18	5.16	4.92	3.41	4.84	SUBTOTALS (kVA)		
CONNECTED (kVA)			8.54	7.59	10.08						
CONNECTED (AMPS)			71	63	84						
VOLTAGE/PHASE				208Y/120V, 3P, 4W							
MAINS RATING				225A							
MAIN BREAKER CIRCUIT RATING				MAIN LUGS ONLY							
AIC RATING				EXISTING							
SERVICE ENTRANCE RATED				NO							
ENCLOSURE				TYPE 1							
MOUNTING TYPE				SURFACE							

[ ] CIRCUIT IMPACTED BY WORK. SOME EXISTING RECEPTACLES OR LIGHTS ON INDICATED CIRCUITS BEING REMOVED. FIELD VERIFY.

CIRCUIT NUMBERS AND DESCRIPTIONS ARE BASED ON A COMBINATION OF EXISTING DRAWINGS AND PANEL DIRECTORY. EC MUST TRACE OUT AND VERIFY ALL IMPACTED CIRCUIT NUMBERS IN THE FIELD.

COMM ROOM PANEL											
			LOAD (kVA)			LOAD (kVA)					
CKT #	LOAD	BKR	A	B	C	C	B	A	BKR	LOAD	CKT #
1	COMM RM 20A REC.	20/1	1.00	--	--	--	--	1.00	20/1	COMM RM 20A REC.	2
3	COMM RM 20A REC.	20/1	--	1.00	--	--	1.00	--	20/1	COMM RM 20A REC.	4
5	COMM RM 20A REC.	20/1	--	--	1.00	1.00	--	--	20/1	COMM RM 20A REC.	6
7	COMM RM 20A REC.	20/1	1.00	--	--	--	--		20/1		8
9	COMM RM 30A REC.	30/1	--	2.00	--	--		--		SPACE	10
11	COMM RM 30A REC.	30/1	--	--	2.00		--	--		SPACE	12
13	COMM RM 30A REC.	30/1	2.00	--	--	--	--			SPACE	14
15		20/1	--		--	--		--		SPACE	16
17	SPACE		--	--			--	--		SPACE	18
19	SPACE			--	--	--	--			SPACE	20
21	SPACE		--		--	--		--		SPACE	22
23	SPACE		--	--			--	--		SPACE	24
25	SPACE			--	--	--	--			SPACE	26
27	SPACE		--		--	--		--		SPACE	28
29	SPACE		--	--			--	--		SPACE	30
SUBTOTALS (kVA)			4.00	3.00	3.00	1.00	1.00	1.00	SUBTOTALS (kVA)		
CONNECTED (kVA)			5.00	4.00	4.00						
CONNECTED (AMPS)			42	33	33						
VOLTAGE/PHASE				208Y/120V, 3P, 4W							
MAINS RATING				100A							
MAIN BREAKER CIRCUIT RATING				MAIN LUGS ONLY							
AIC RATING				EXISTING							
SERVICE ENTRANCE RATED				NO							
ENCLOSURE				TYPE 1							
MOUNTING TYPE				SURFACE							

NO WORK IN COMM PANEL IS PLANNED. SHOWN FOR REFERENCE ONLY.

EQUIPMENT CONNECTION SCHEDULE												
SYMBOL	DESCRIPTION	FURN. BY	kVA	HP	VOLT/PH	MCA	MOCP	DISC	AWG	EGC	COND	NOTES
RTU-1,2	NEW ROOFTOP HEAT PUMP	MECH	-	-	208/3	55.1	60.0	60	#6	#10	1 in	
RTU-3-5	NEW ROOFTOP HEAT PUMP	MECH	-	-	208/3	58.8	60.0	60	#6	#10	1 in	
DS-1	DUCTLESS SPLIT SYSTEM	MECH	-	-	208/1	13	15	30	#12	#12	3/4 in	1

1. POWER MUST BE RUN FROM OUTDOOR UNIT TO INDOOR UNIT

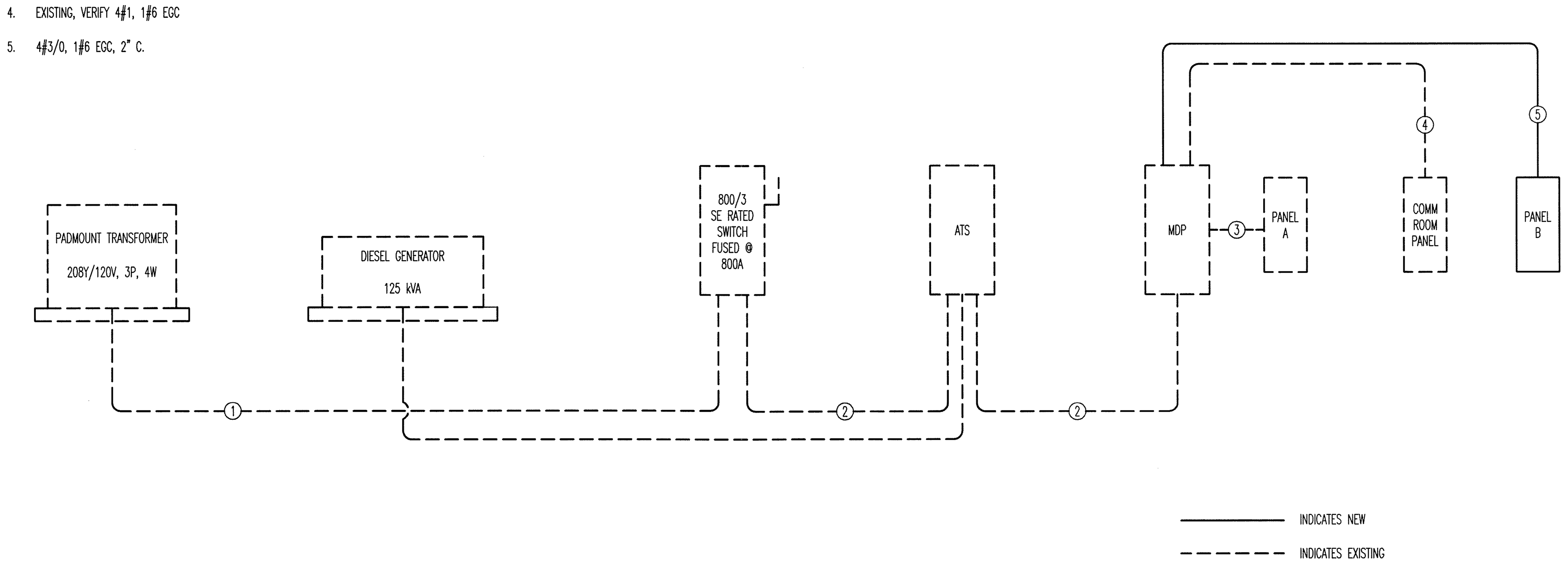
PANEL B											
			LOAD (kVA)			LOAD (kVA)					
CKT #	LOAD	BKR	A	B	C	C	B	A	BKR	LOAD	CKT #
1	REC. 131	20/1	0.18	--	--	--	--	0.36	20/1	REC. 129	2
3	REC. 132	20/1	--	0.18	--	--	0.72	--	20/1	REC. 129,133	4
5	REC. 140,142,136	20/1	--	--	0.54	0.90	--	--	20/1	REC. 133,142,143	6
7	REC. 137	20/1	0.36	--	--	--	--	0.72	20/1	REC. 139,142,143	8
9	REC. 130,137	20/1	--	0.72	--	--	1.00	--	20/1	REF.	10
11	REC. 130	20/1	--	--	0.72	1.50	--	--	20/1	MICROWAVE/HOOD	12
13	REC. 138	20/1	0.18	--	--	--	--	0.15	20/1	EF-3	14
15	REC. 138	20/1	--	0.18	--	--	0.86	--	20/1	ERV-1	16
17	REC. 138	20/1	--	--	0.36	0.50	--	--	20/1	DOOR CONTROLS	18
19	DISPATCH QUAD	20/1	0.36	--	--	--	--	0.00	20/1	SPARE	20
21	DISPATCH QUAD	20/1	--	0.36	--	--	0.00	--	20/1	SPARE	22
23	DISPATCH QUAD	20/1	--	--	0.36	1.56	--	--	15/2	DS-1	24
25	DISPATCH QUAD	20/1	0.36	--	--	--	--	1.56			26
27	DISPATCH QUAD	20/1	--	0.36	--	--	0.00	--	20/1	SPARE	28
29	SPARE	20/1	--	--	0.00	0.00	--	--	20/1	SPARE	30
31	SPARE	20/1	0.00	--	--	--	--	7.06	60/3	RTU-4	32
33	SPARE	20/1	--	0.00	--	--	7.06	--			34
35	SPARE	20/1	--	--	0.00	7.06	--	--			36
37	BREAK ROOM RANGE	50/2	4.80	--	--	--	--	5.81	60/3	RTU-5	38
39			--	4.80	--	--	5.81	--			40
41	SPARE	20/1	--	--	0.00	5.81	--	--			42
SUBTOTALS (kVA)			6.24	6.60	1.98	17.33	15.45	15.66	SUBTOTALS (kVA)		
CONNECTED (kVA)			21.90	22.05	19.31						
CONNECTED (AMPS)			183	184	161						
VOLTAGE/PHASE				208Y/120V, 3P, 4W							
MAINS RATING				200A							
MAIN BREAKER CIRCUIT RATING				MAIN LUGS ONLY							
AIC RATING				MATCH EXISTING							
SERVICE ENTRANCE RATED				NO							
ENCLOSURE				TYPE 1							
MOUNTING TYPE				SURFACE							

NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W					
EQUIPMENT	DEMAND FACTOR	kVA			LOAD kVA
		A	B	C	
EXISTING LOAD 8	125%	26.30	26.30	26.30	78.90
RECEPTACLES < 10 kVA 5	100%	2.52	3.52	4.38	10.42
RECEPTACLES > 10 kVA 5	50%	0.00	0.00	0.00	0.00
NEW HVAC 2	100%	34.39	34.39	34.39	103.17
SUBTRACT OLD HVAC	100%	22.20	22.20	22.20	66.60
DEMAND kVA PER PHASE		41.01	42.01	42.87	
DEMAND AMPS PER PHASE		342	350	357	

1. NOT USED
2. ALL HVAC EQUIPMENT IS BASED ON MCA.
3. NOT USED
4. NOT USED
5. PER NEC 220.44
6. PER NEC 220.14(F)
7. PER NEC 220.56
8. PER 220.87. HIGHEST DEMAND FOR 12 MONTHS IS 50.5 kW

CONDUCTOR SCHEDULE

1. EXISTING 3 SETS OF 4#300 kcmil IN 3" C.
2. EXISTING 3 SETS OF 4#300 kcmil, 1#1/0 EGC IN 3" C.
3. EXISTING 4#2/0, 1#6 EGC, 2" C.
4. EXISTING, VERIFY 4#1, 1#6 EGC
5. 4#3/0, 1#6 EGC, 2" C.



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Plumbing ■ Mechanical
Electrical ■ Fire Alarm

NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 6/14/12
SEAL

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
SEAL

RENOVATIONS TO:
WAKE FOREST POLICE STATION
225 S. TAYLOR ST
WAKE FOREST, NC 27587

REVISIONS:

NO	DATE	DESCRIPTION

ISSUED:

NO	DATE	DESCRIPTION
A	2012-06-14	PERMIT SET

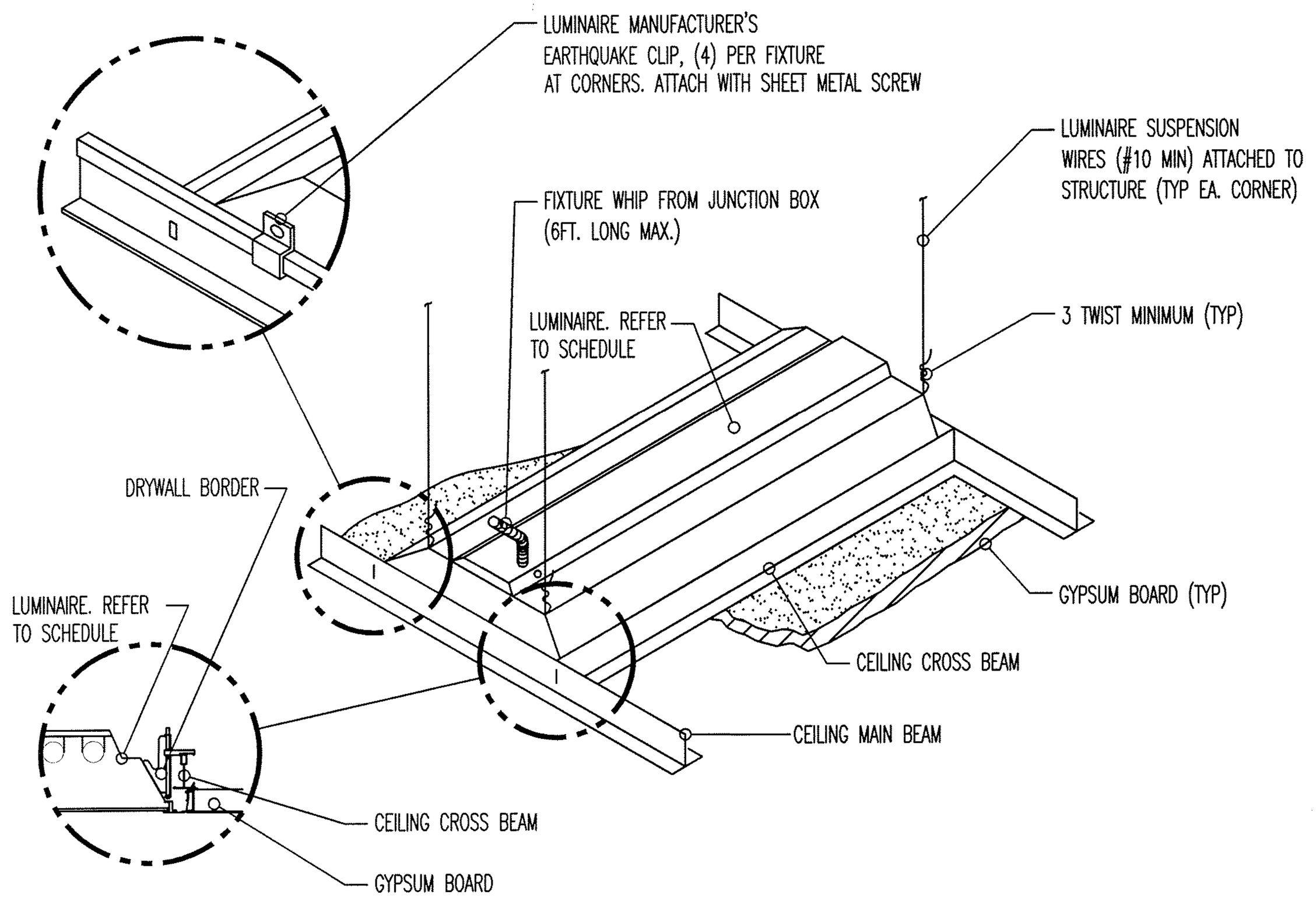
DRAWN BY:
CHECKED BY: MWK

PANEL SCHEDULES
POWER RISER

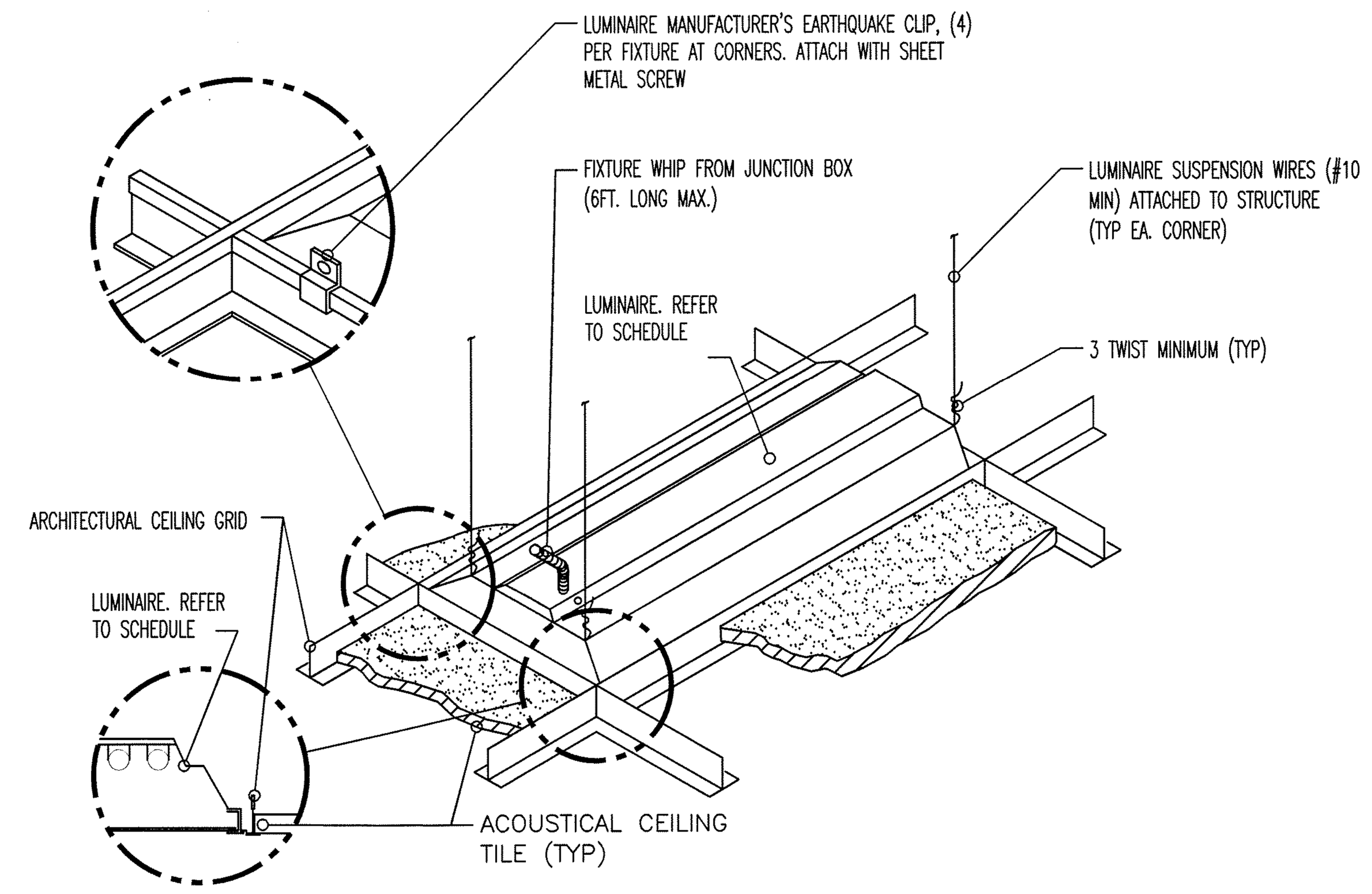
SHEET NO.
E5

PROJECT NO: 12-079

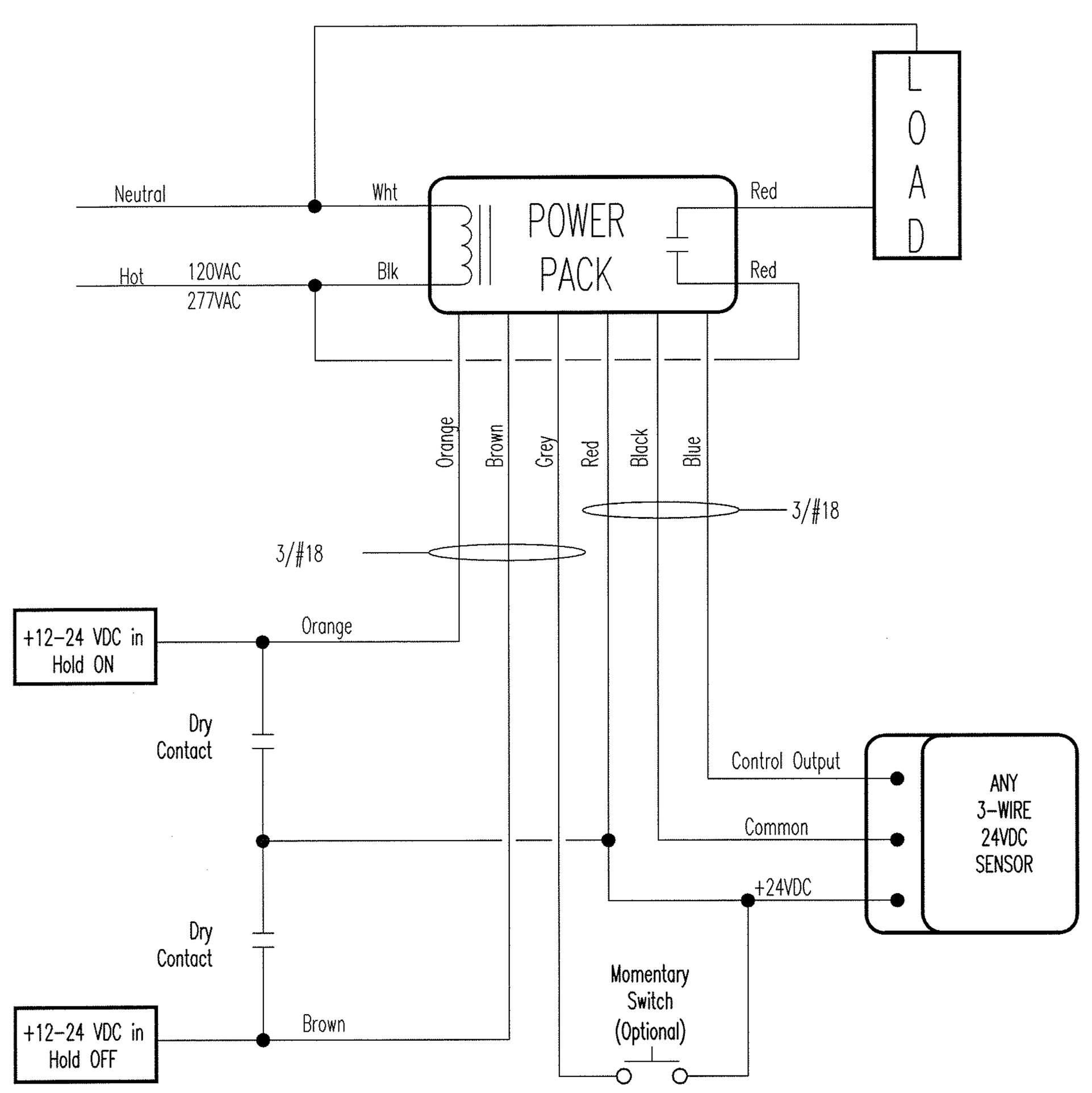
E5.0 POWER RISER & PANEL SCHEDULES



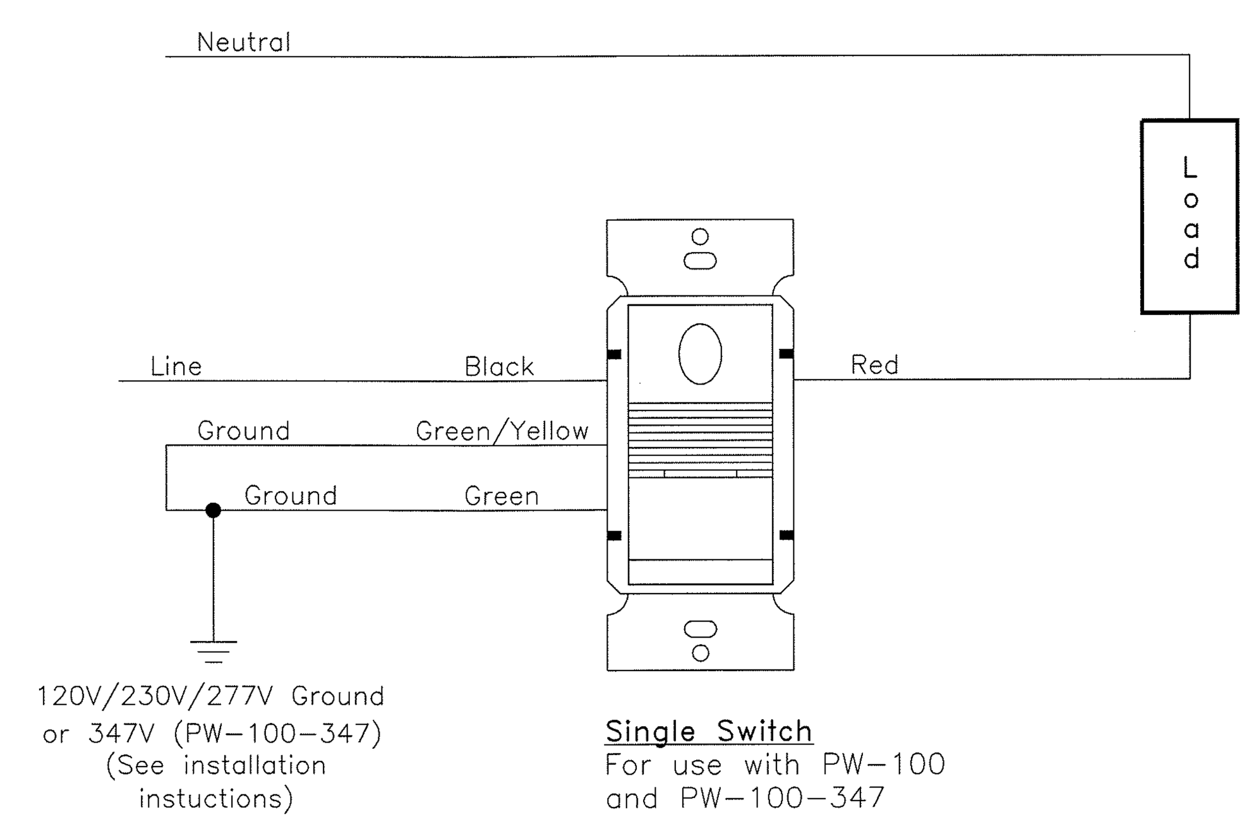
LUMINAIRE MOUNTING-SURFACE
NO SCALE



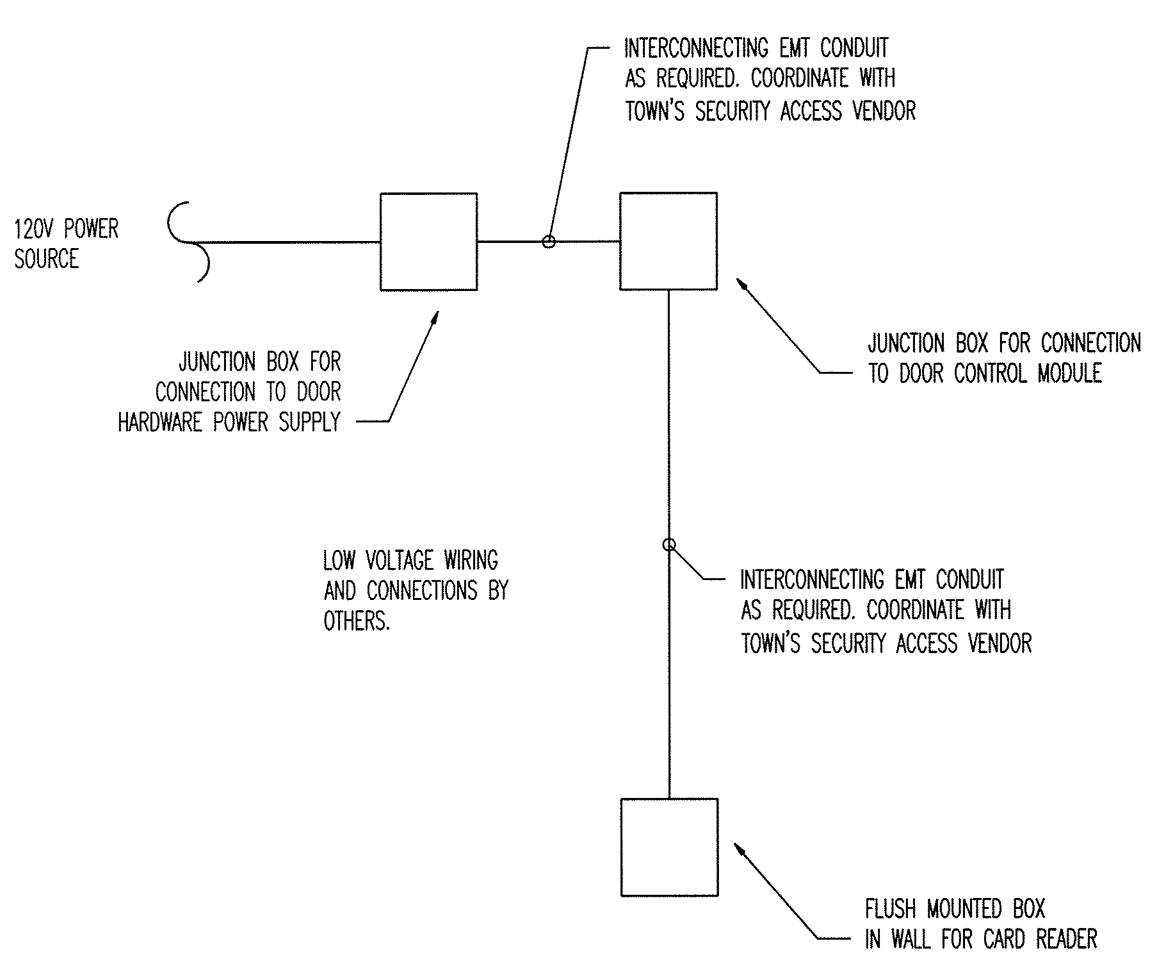
LUMINAIRE MOUNTING-LAY-IN
NO SCALE



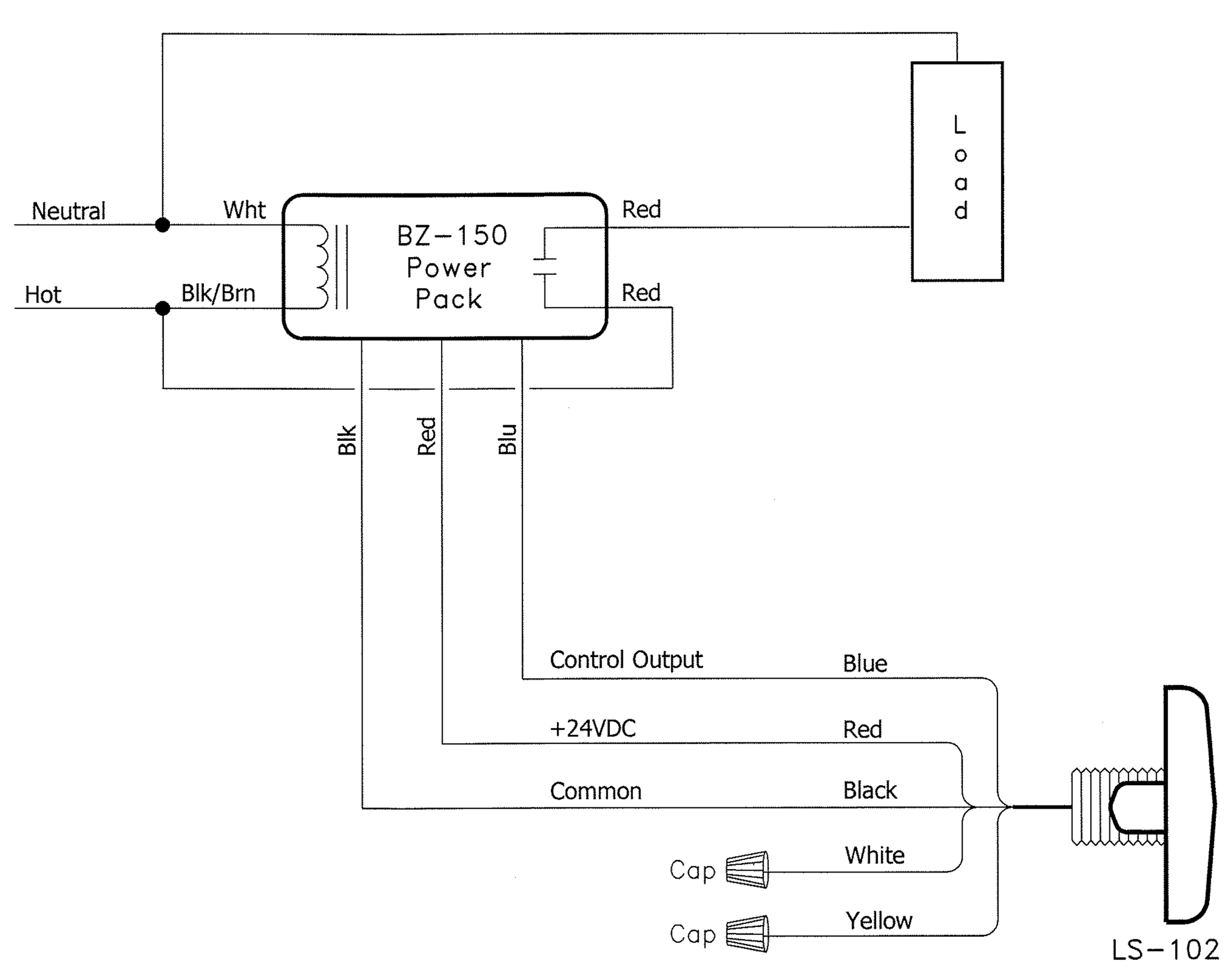
CEILING OCCUPANCY SENSOR DETAIL
NO SCALE



WALL SWITCH OCCUPANCY SENSOR DETAIL
NO SCALE



DOOR HARDWARE SCHEMATIC AND WORK SCOPE
NO SCALE



Operation:
LS-102 turns power pack ON/OFF based on light level.

Note
See the product data sheet to determine the maximum number of Sensors per power pack.

DAYLIGHT SWITCHING SENSOR DETAIL
NO SCALE

E6.0 ELECTRICAL DETAILS-NO SCALE

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SEAL
SEAL

RENOVATIONS TO:
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225 S. TAYLOR ST
WAKE FOREST, NC 27587

REVISIONS:

NO	DATE	DESCRIPTION

ISSUED:

NO	DATE	DESCRIPTION
A	2012-06-14	PERMIT SET

DRAWN BY:
CHECKED BY: MWK

ELECTRICAL DETAILS

SHEET NO.
E6

PROJECT NO: 12-079